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# METHODS
# AND TECHNIQUES
# OF TEACHING

*With deep reverence to the Unknown Teacher*

"Great generals win campaigns but it is the Unknown Soldie who wins the war. Famous educators plan new systems of pedagog but it is the Unknown Teacher who directs and guides the young He lives in obscurity and contends with hardship. For him no trumpet blare, no chariots wait, no golden decorations are decreed. He keep the watch along the borders of darkness and makes the attack on th trenches of ignorance and folly. Patient in his duty, he strives t conquer the evil powers which are the enemies of youth. He awakes the indolent, encourages the eager, and steadies the unstable. H communicates his own joy at learning and shares with boys and gir the best treasures of his mind. He lights many candles, which in later years will shine back to cheer him. This is his reward. Knowledge may be gained from books, but the love for knowledge is transmitted only by personal contact. No one has ever deserved better of republic than the Unknown Teacher. No one is more worthy to be enrolled in democratic aristocracy, 'King of himself and Servant of mankind'."

*Henry Von Dyk*

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# METHODS AND TECHNIQUES OF TEACHING

S.K. KOCHHAR

S.C.E.R.T., West
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STERLING PUBLISHERS PRIVATE LIMITED

STERLING PUBLISHERS PRIVATE LIMITED,
L-10, Green Park Extension, New Delhi-110016
G-2, Cunningham Apartments, Cunningham Road, Bangalore 560052

(Binding)

R.T. West Benga
2.3.90
No 4753

371
KOC

*METHODS AND TECHNIQUES OF TEACHING*

© 1981, (First Edition) S.K. Kochhar

**1985, Second Revised and Enlarged Edition**
**Reprint 1986**
Reprint 1988

PRINTED IN INDIA

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Published by S.K. Ghai, Managing Director, Sterling Publishers Private Limited, L-10, Green Park Extension, New Delhi-110016.
Printed at Ram Printograph (India), New Delhi - 110020

# PREFACE TO THE SECOND EDITION

For past some time, a spirit of change and innovation pervades educational activities in our country. Old curriculums are being renovated and redesigned; new methods of teaching are being used to optimise learning on the part of the pupils. A sophisticated instructional technology, much in use in foreign countries, is making inroad in our progressive schools. Institutions and services of a new kind intended to help pupils teach themselves—programme and teaching aids, audio-visual aids like radio, films, television, etc. and new types of instructional organisations like team teaching are being integrated into our educational system. It is against this background that the book has been thoroughly revised and updated to acquaint the teachers with the latest techniques to enable them to improve educational practices.

It is said that the best gift we can give to each succeeding generation is "effective education." This can only be possible if the existing practices are renovated from time to time in the light of new developments and changing requirements. The purpose of the book will be achieved if it gives teachers a surer feeling and stimulates them to try these innovations as well as the dynamic methods and techniques of teaching, so as to give "effective education" to the succeeding generation. Teacher education programmes should include equipping the teachers with different roles and functions imposed by new technologies.

The author expresses her thanks to all those scholars whose writings have helped in updating the book.

Suggestions to improve the book will be gratefully received.

Chandigarh *S.K. Kochhar*

# PREFACE

"Ah, teaching is a thankless job"—comes the reaction from a teacher who has not put his heart and soul to learn the noble art of teaching. Teaching is a skill like any other skill; it can be acquired and refined with the help of methods and techniques peculiar to it. The motivating force behind this book is just the desire to provide teachers with insight into the methods and techniques, problems and processes—to help them learn the art and skill of the inexperienced teacher, his untested frame of reference for teaching, his limited approach to resources that facilitate learning. Attempt is also made to refresh, update and extend the acquaintance of the experienced teacher.

The book opens with consideration of genesis of modern education and current and prospective developments in a rapidly changing world; attention to these important phenomena reappears throughout the volume. Valuable practices in the past as well as in recent experimentation in India and elsewhere have been given due place to equip the teacher with the latest literature in the field. If the book helps the teacher to perform his job well, the author will feel amply rewarded.

The author is extremely grateful to her readers who have been a source of perennial encouragement and inspiration all these years.

The author feels deeply indebted to all those scholars whose writings have helped in amplifying certain assertions and thus have enriched the book.

I am also very heavily indebted to my husband, Mr T.S. Kochhar, who contributed in many ways to the completion of the book.

My thanks are no less due to my young publisher Shri S.K. Ghai who has spared no pains to give the book a nice get-up.

*S.K. Kochhar*

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## 1

# THE GENESIS OF MODERN EDUCATION

*Education two centuries back—New trends in the West take birth—The rise of new trends in the East—Educational Technology comes to the fore—Summary—Questions and Problems—Bibliography.*

### Education two centuries back

About two centuries back, education was merely informative. The child was treated as a pitcher into which the teacher poured "gallons of empirical facts !" Intellect was developed to the neglect of other phases of personality. The child was made to remain quiet and receptive ; the teacher was a dictator. This authoritarian discipline crushed all initiative in the child. Curriculum was bookish and rigid and consequently the child was made to adjust to it. Education was static and progress through education was insignificant.

### New trends in the West take birth

At the beginning of the 18th century, there appeared a considerable reaction against this narrow view of education. Initiated by Rousseau and followed by Pestalozzi, Herbart, Froebel and Montessori, the modern reaction against this concept of learning reached its climax and found its most persuasive exponent in the American philosopher-educationist—John Dewey.

Jean Jacques Rousseau (1712—1778) was the first in the field ; he published '*Emile*' wherein he suggested drastic changes in the theory and practice of education. He declared emphatically that education must accord with child nature and that nature of the child must be known. Whereas children had been previously considered to be innately evil, Rousseau went to the opposite extreme and wrote that they were innately good. This new concept of child led to an improved treatment of children in countless homes and schools.

Rousseau condemned the traditional bookish knowledge. He pleaded that a child should be educated through his own exploration of the environment. A better education, he believed, could be obtained through physical activity and perception of nature rather than through books. "Let there be no books but the world and no other instruction than facts." He objected to verbalism in education. "Words, words, words! nothing but words!" Rousseau's ideal was to have no masters but 'nature' and no models but 'objects'.

The child, Rousseau said, should not be fitted into a sociological and theological mould. 'Know childhood' was the first precept.

Rousseau believed children should have the freedom to behave and develop naturally. This theory has been called naturalism and its key ideas are growth, experience and interest.

The greatest contribution of Rousseau to education was the recognition of the difference between the immature child and the adult. His book *Emile* served as the fountain head of inspiration for every great educational reform since the 18th century.

Rousseau's work was further continued by Heinrich Pestalozzi (1746–1827). The need for developing the natural instincts of the child without any restriction had been pointed out by Rousseau, but mainly in negative ways...... Pestalozzi extended Rousseau's naturalism by giving concrete suggestions to be carried out in the schools. Pestalozzi tried to offset Rousseau's individualistic imbalance without forgetting that children must be educated as children before they become adults. He maintained that knowledge of child's nature was essential to the best instruction. The methods of instruction could vastly aid or retard education. Discipline was to be strict but kind. The most valuable lessons were to be learnt through direct experiences with objects and places, and by observation, inquiry and reasoning.

Pestalozzi organised his schools on the pattern of a family, maintaining that there should be no difference between the school and the home. In his schools he taught not only the 3 R's but also practical occupations such as spinning and weaving, house-keeping and farming. The major contribution of Pestalozzi was pupil-activity to an extent formerly unknown, constructive and creative work, and pupil discussion.

Johann Friedrich Herbart (1776–1841) sometimes called the "father of modern psychology" was a German philosopher and educator whose ideas gave an impetus to education in the first half of the nineteenth century. The novelty consisted in the psychological basis of his philosophy. Herbart was in rebellion against rote learning. He believed that a mere accumulation of facts was useless and that facts must be so taught as to have meaning for the learner. This learning should lead to character formation. He maintained that the aim of education was ethical and moral. He thought the most important school subjects for character formation were history and literature. These two subjects were to be used as a "Core" for the curriculum and attention was to be concentrated upon them. Other subjects were to be correlated with history and literature so as to produce a unity of subjectmatter. Herbart anticipated the later use of *units of work* in the schools.

Some of the major planks in Herbart's educational platform were apperception and doctrine of interest. The principal of apperception was that a new experience for the learner had to make contact and find some relationship with that which was already a part of the learner. On teaching, Herbart advocated, children should be prepared for new knowledge by first recalling relevant past knowledge. The principle of apperception is still regarded as sound psychology

Herbart emphasised interest not only as motivation but as an end of education. Before knowledge, there must be interest and this could be aroused by a recall of the child's past related experiences. A many-sided interest should be developed and, therefore, the curriculum should include not just a few but a wide range of subjects. This variety of interests should also possess a unity. Herbart believed this unity could be achieved through reflection and could be greatly aided by a correlation of subjectmatter.

Friedrich Wilhelm August Froebel (1782--1852), a German educator, is well known as the father of the kindergarten concept. He was neglected in his early years and his memories of the sufferings of those years made him want to help lead happier lives.

Froebel created a new respect for the individuality of the child. He tried to develop the potentialities to be found in the individual by means of initiative, execution and co-operation in the educational process. He used play as a vehicle for individual development. His emphasis upon activity and social participation and a school without books and set tasks has a distinct and far reaching contribution to educational practice. He impressed upon the world that rigid discipline and traditional formality of the school atmosphere must be given up to develop the dynamic and active qualities of child's nature. He made the kindergarten a cheerful and happy institution in striking contrast to the infant schools of his day, where activity was curbed and impulses were checked. He advocated that activity was natural and therefore right ; it could be intellectualised and so made a means of instruction. Froebel completed the system of Rousseau by providing a richer and stimulating environment which had been denied to *Emile*. Froebel's kindergarten had been declared to be "by far the most original, attractive and philosophical form of infant development the world has yet seen." Not only millions of kindergarten children but millions of elementary school children owed Froebel their thanks for wholesome happy class-rooms as the spirit of the kindergarten moved up into the other grades.

Froebel believed in building the curriculum around children's interest, as their interests are symptoms of their potentialities. Modern psychologists corroborate this emphasis upon the child's interests, needs and abilities.

Dr. Maria Montessori (1870—1952) is the next theorist in this sequence of child romance. Her methods of child education were based on her work with the mentally deficient. She discovered the pace of the mentally retarded and made it her standard for the normal child. She believed in providing an atmosphere of complete freedom for the growth of the child. Dr. Montessori trained her children to work but there was no imposition of work, there were no rewards and no punishments. No child was ever told a letter was faulty. "Every stupid child and every stupid man is the product of discouragement"—that sums up her thesis. By education she understood "the active help given to the normal expansion of the life of the child". Child, she said, should be able to adjust himself to his immediate environment. She was an environmentalist. She believed that a well-constituted environment will develop within the child that 'active' life which will give him pleasure and will also reveal to him a spiritual life. Freedom and auto-education should be the motto of that environment. She wanted the development of the child from within and not from without. Latent powers of the child, she advocated, must be unfolded.

Caldwell Cook was the next educator who influenced the methodology of education. He asserted "only that child learns best who learns with interest and with a purpose, and sees significance in what he learns." He discarded much that he regarded as drill and exercise for mental training. According to him, the content must grow out of, and develop with, the expanding atmosphere of the pupils. He adopted the play-way in teaching. To take an example only of his lessons. Shakespeare was taught by acting from the text. Difficult passages were never analysed or explained. He rather criticised "those teachers who insist upon a careful and often prolonged study of all passages which present any natural difficulty......" He argued, "It means that all the fun is out of school .. all the study is in the school ..owing to this blunder on the part of our educationists the gap is ever widening between work and play ..the core of my faith is that the only work worth doing is play ; by play I mean doing anything with one's heart in it." Thus Caldwell Cook advocated a new way of teaching—the Play Way.

More recently appeared John Dewey (1859—1952) on the educational scene. He was regarded as a great philosopher, educationist and humanist. he exercised a profound influence on the American educational system of his times and also on other philosophers and educators of the world. In 1899, he published his book "The School and Society " wherein he gave an account of the methods he was then carrying out in his Laboratory School for children.

John Dewey—a landmark in the romance of teaching—gave currency to the word democracy in education. Also, he tried to solve the problem of education in a truly practical way. He asserted that child must learn through action. If knowledge is nothing but an instrument for action, mere theoretical knowledge is not worth the name. In season and out of season he preached that : (a) a man or a child do not learn exclusively with his mind or with his body but with his bodymind ;(b) book learning is only a part perhaps not the most important part of education ; (c) the learning process, must cater for the whole child and not merely his mind. In contrast to passive rote learning, Dewey emphasised learning from experience and activity. He was convinced that children like adults, learn best from experience, by study from real life as well as from books. Education, he said, was a process of living and not merely a preparation for future living, the ideal school would be a simplified, purified and balanced epitome of the life outside its walls, providing the children with real life situations and experience through which they could educate themselves. According to Dewey, the child is spilling over with interest. His interest must be capitalised for education.

According to Dewey's assertion, the combination of theory and practice in the school can be achieved through occupations. He believed that while employing occupations systematically and by giving them a definite place in the school, healthy personal interest in the learning was assured. *Dewey's is an education by, of, and for experience.* project method is the practical outcome of Dewey's philosophy. He made a Project as the centre of teaching. All useful knowledge was correlated with the project.

**The rise of new trends in the East**

Rabindranath Tagore (1861—1941) was a great educator of the East who contributed to the theory and practice of education. According to him, the highest education is that which dose not merely give us information but attunes our life in harmony with all existence. The primary object of an institution, says he, should not be merely to educate one's limbs and mind, to be in efficient readiness for all emargencies, but to be in perfect tune, in symphony of response between life and world, to find the balance of their harmony which is wisdom . This idea, Tagore realised in his school at Bolpur which later on, developed into a university.

He stated, "willingly, therefore, I harness myself in my advanced age to the arduous responsibility of creating in our education a colony in Santiniketan, a spirit of genuine international collaboration based on a definite pursuit of knowledge, a pursuit carried on in an atmosphere of friendly community life, harmonised with nature and offering of individual self-expression."

He advocated full freedom for children as freedom brings about union of perfect sympathy ; freedom calls forth responses of the heart. He broadbased education on a spiritual basis. His work as a teacher is now immortalised and enshrined in the institution of Santiniketan and Visva Bharati—these carry the best cargo of his life. These are the symbols of an original teacher who gave our people back the self-confidence that they had been in danger of losing. Tagore wanted to establish a new system of education on the basis, not of nationalism, but of a wider relationship of humanity. Tagore's universal humanitarianism is the corner stone of collaboration between East and West says Lesny. Tagore worked for a closer contact between the East and the West and he advocated a synthesis between the two, so that the East should give its best to the West and in return assimilate the best that Western civilization can give it.

Tagore is India's Rousseau, Pestalozzi and Froebel, all rolled into one. Like them, he turned rebel. Again, he stood for the emancipation of the child and asserted its right to live on his own. He advocated for the child freedom to grow up, to play and learn at will. Like them he laid emphasis on initiating the child into the arts of singing, dancing and mimicry or make-believe. Tagore includes art as an integral part of education. "A large part of man," says Tagore, "can never find its expression in the mere language of words. It must, therefore, seek for itself other languages—lines and colours, sounds and movements."

With Gurudev Tagore alive, Santiniketan in the thirties was a wonderful place to be in. Beauty in life ; the blending of the ancient and the modern in India ; creative links with the West ; the significance of Asia and of India's place in it ; unity of music, art and education ; freedom of thought and discussion ; secularism and a sense of Indianness, without being narrowly national—all these were in the air to breathe and make one's own.

Tagore. happens to be the first educator in the world who felt that the teacher will have to play a new role in the international sphere because most of the problems to-day are *international.*

Mahatma Gandhi (1869—1948), a philosopher-educationist, advocated the Basic Education in the East. Whereas Dewey correlated all useful knowledge with crafts, Gandhiji made an original contribution to the world of pedagogy with the introduction of craft as the centre of correlation. It was not education *plus* work but education *through* work. This was decidedly the next step forward because craft provides immense educational potentialities without binding the teacher to the narrow field of problems. Gandhiji held that the highest development for the mind was possible under a system of education which was craft-centred.

Later, the rich possibilities of the physical and social environment were also considered as useful centres of correlation. Thus, the whole teaching is to be developed through important units of activities in the corporate school life of the pupils, such as the basic craft, subsidiary crafts, gardening, establishing relationship with life in the school, home and locality.

The influence upon Indian education of this galaxy of prominent educators—Rousseau, Pestalozzi, Herbart, Froebel, Montessori, Caldwell Cook, John Dewey, Mahatma Gandhi, Rabindranath Tagore—is so interwoven, both in spirit and method into the fabric of education, that it would be almost impossible to isolate the contributions of all these. Indian education in particular and system of education in almost all the countries of the world in general is infinitely richer with the contributions of all these great teachers of mankind.

**Educational technology comes to the fore**

More recently in the middle part of the twentieth century, a remarkable trend was witnessed in the U.S.A. and U.K. which created world wide impact. Technology has been successfully introduced in the field of education to make education more productive and more individual ; to give instruction a more scientific base ; and to make instruction more powerful, learning more immediate, and access to education more equal. Educational technology has made tremendous progress in the last decade and is continually making great strides in the developing countries of the world.

The first impact of present technology is the trend towards a mass instructional technology which is governed by machines and systems suitable for that purpose. The main purpose of mass instruction technology is to benefit more students with fewer teachers to obtain quality education. The reverse of this trend of mass instruction is the trend of growing technology for individual instruction. The most dramatic development in this direction is the introduction of teaching machines which contain carefully worked out verbal or pictorial programmes with mechanical or electronic arrangements to test the students' reaction and inform him of his performance, progress and errors. Language laboratories, programmed printed material, teaching machines of the Skinner and Pressey type, computer etc., are being used to cater to the needs of individual students. All these are resulting in a great revolutionary development in education.

## Summary

1. About two centuries back education was static. Major emphasis was on development of intellect. Curriculum was bookish and rigid. Discipline was authoritarian.
2. Rousseau, Pestalozzi, Herbart, Froebel, Montessori, Cook, Dewey in the West advocated far-reaching changes in the theory and practice of education.
3. In the East, Gurudev Tagore established a new system of education in Santiniketan based on a wide relationship of humanity. Mahatma Gandhi advocated Basic Education—a system of free, universal and compulsory primary education. Knowledge was to be imparted in correlated form.
4. More recently technology has been introduced in education to make education more productive and more individual. Educational technology has made tremendous progress in the last decade.

## Questions and Problems

1. Name some of the pioneers in 'New' methods of teaching and refer briefly to their main contributions.
2. Examine the contribution of educators in the East and the West to the theory and practice of education.

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# 2

# SIGNIFICANT TRENDS IN MODERN EDUCATION

*A new concept of education—Creative education—Revolution in the teaching-learning process—Meeting individual differences—Socialization and group dynamics—Activity-centred—Integration and correlation—Discipline—Teacher participation—Teacher's nonintervention—Parental co-operation—New material and modes of instruction—School arrangement—Methods of appraisal—Conclusion—Summary—Questions and problems—Bibliography.*

## A new concept of education

Today the world is passing through rapid changes. In such a world, education cannot (and even should not) resist change. Thus the educational pot is boiling more violently today than ever before in the century. The world is on the threshold of an exciting and revolutionary period in which the scientific study of man will be harnessed in man's best interest. Education must play its part. It must accept the fact that a sweeping revision of educational practices is possible and inevitable. The imperatives of new times, new demands and new visions require an education of such quality as never was visualised in human history. No wonder a new and comprehensive concept of education is emerging. It is being realised that education is a concept philosophically evolved, psychologically developed and socially based. Education is being considered a functional social science which has to mirror the social phenomenon and also bring changes in that phenomenon.

John Dewey, a progressive educator of the present century calls education as the development of all those capacities in the individual which will enable him to control his environment and fulfil his possibilities. Redden states, "Education is the deliberate and systematic influence, exerted by the mature person upon the immature, through instruction, discipline and harmonious development of physical, intellectual, aesthetic, social and spiritual powers of the human being, according to individual and social needs and directed towards the union of the educated with his Creator as the final end." Horne also writes, "The new education is an educational philosophy that is improving school-room practices, making learning a more powerful process, giving children the sense of reality in the school, making schools into workshops, laboratories, libraries, and inspiring educational experimentation."

Out of the sociological, psychological and philosophical bases of modern education there has arisen a number of significant trends in teaching and learning practices. We shall discuss the same now.

During the past few decades, a spirit of change and innovation pervades educational activities in many parts of the world. This spirit is in part due to dissatisfaction—dissatisfection with the irrelevance of much of curriculum, dissatisfaction with the poor means of communication and dissatisfaction with the old and stereotyped methods of teaching. A few thoughtful innovators and thousands of creative teachers, often far apart geographically seem almost to be joined in a common question for an instructional technology that is more and more satisfying to teachers and students. More of fresh air is being felt in the educational institutions. Significant modern trends are being noticed in educational institutions. We shall discuss the same now.

**Creative education**

One of the most significant trends in today's schools is the encouragement of creativity. Human advancement comes through original thought and invention. To encourage original thought and invention is the great role of creative education. To this end, the modern school awakens and develops whatever is unique and distinctive in every individual child, irrespective of psychological, physical or social differences. Difference or uniqueness is being cherished rather than lamented. Emphasis is laid on differences rather than on sameness' more on originality, inventiveness than on something old. A way of excellence is encourged in all endeavours whether of intellectual, aesthetic or moral import. Creative education becomes a key to greatness of effort and of spirit. The children are not made to fit into a set educational mould now. In the new school there is much individual instruction, individual initiative and self-education. Creativity is fostered through the organisation of the entire school programme in general and through creative expression in the arts in particular.

Children are helped to set their own goals, plan their own activities, work in groups in which opinions can be shared. Creativity exists in the entire fabric of the new school. Children have liberty to experiment, opportunity to find new ways of handling material, and freedom to express their own unique personalities. Experience is enriched by expression ; the expressive phase of activity gives meaning to experience. Creativity serves to quicken perception, strengthen emotion, and unify interests. Imagination is allowed to have full play. Pupils are encouraged to find relationship among facts, discover the similarities and differences among things in the universe, test hypothesis already formulated and solve problems keeping alive the spirit of adventure in learning.

Many schools encourage creative expression through the arts—creative writing, painting, music, crafts, rhythmic activity, and dramatics. A wide variety of expressive materials is made readily available and a warm friendly atmosphere is provided so that creative expression may flow best.

### Revolution in the teaching-learning process

There is a switch-over from the subject matter to be learned to the human being who is to learn it ; a switch-over from teachers who are specialists in teaching to teachers who are specialists in pupils. To accomplish maximum developments of the child, the teacher observes and evaluates each child's characteristics. With this knowledge, he adapts work to interests, expectations to abilities and ambitions to talents.

The fact that children differ in abilities, both physical and mental, is recognised. The uniqueness of the children in the number, kind and degree of intensity of their interests is also recognised. Attempt is made to make the instructional programme effective by knowing as much about the child as possible. "To learn the pupil" might be weak grammar but is sound pedagogy ! Today a teacher has to know all about a child's mind, body, background, capabilities, and handicaps to do justice to the difficult process of teaching,

### Meeting individual differences

One of the most encouraging improvements in today's schools is the attempt to meet individual differences among childern in satisfying ways. Those individual differences include variation in special interests and talents, physical and mental ability, emotional needs, readiness for learning, and subject-matter achievement. The teacher plans the programme so that children will succeed in the quest for desirable interests and receive recognition for achievement. The teacher also helps to satisfy the child's need for affection by a sincere, consistent and impartial friendliness. The teacher in the new school tries to make every child worthy in such accomplishments as are suited to his abilities. No child is made to feel inferior or falsely superior to another. In evaluation, he gives more praise than blame. He guides children towards responsible self-discipline by having them set even higher goals than they are able to achieve. To meet individual differences in mental ability, experiments in special schools, special classes, enriched programmes are being tried to enable the children to achieve according to their own potential. To meet the child's varying subject-matter needs, the schools are trying homogeneous grouping according to subject-matter achievement. Under this plan, Rubi, who excels in arithmetic but is poor in history, would be placed in the fast-moving group in arithmetic and a slow moving group in history. To meet individual differences in social development, experiments are being tried to enable a child to move from grade to grade without repeating a grade. An increasing number of schools are realising that children need experiences of success to keep mentally healthy. They, therefore, are unwilling to stigmatise children as failures by refusing to promote them from one grade to another. Promotion is preferred to retardation. Units of work are also being tried as they allow all children to contribute to a joint project, each according to his ability. The unit organisation permits gifted children to enrich the total learning experience by more extended reading or by other more creative activities while retarded children can participate in lesser degree but in ways that are valuable to them, and all can feel that they have contributed to the worth of a shared enterprise.

### Socialization and group dynamics

Another trend in schools today is to foster the growth of what is individual in each human being, at the same time harmonising the individuality thus educed with the organic unity of the social group to which the individual belongs. Socially integrated behaviour is furthered when the individual grows in understanding of group welfare and at the same time maintains his own uniqueness. This is best accomplished through group experiences in which the individual child is accepted as he is. Through group processes, children are drawn together by similar interests, by pen friendship, by the setting of common goals, by committee activity in which several children share the work for group purposes, and by appreciative evaluation of the accomplishment of the group. Now, there is less standing in rows or passing in lines. Pupils are privileged to go to the dictionary, library shelves, and to move about the room naturally and quietly without raising their heads for permission to do so. The teacher *directs* the activity of the pupils, the learning takes place naturally. School is a place where young people of any age come together to *educate* themselves and *one another* with the help of the faculty.

### Activity-centred

Modern education is activity-centred. We are currently seeing more emphasis upon what the pupil does as relatively less upon what he learns. It is believed that a teacher at best can only teach and whatever learning the child actually achieves is garnered through his own doing. Thus, the curriculum today is organised in terms of the tasks to be performed and goals to be reached rather than in terms of lessons to be learned. It is now recognised that learning the multiplication tables is second in importance to deciding when to multiply. Drawing a picture from an impression gained from reading a story requires more appreciation and pupil activity than was formerly demanded bv a typical reading or drawing lesson. Truly claims Maria Montessori "We have buried the tedious and stupid A B C primer side by side with the useless copy books !" The pupil's activity has become the goal, the subject-matter is learned as a means to that end. "The new teaching", writes Adams, "recognises the right of the pupil to do things in his own way, within reasonable limits." Now education does not want the child to acquire merely the results of other people's thinking. It rather wants him to forge for himself the knowledges and skills necessary to deal effectively with the situation of real life. That is why the school curriculum's fundamental basis is centred on experiences which are typical of the community living.

**Integration and correlation**

Knowledge is considered synthetic : it is not to be imparted in watertight compartments. Different subjects have to be correlated as far as possible among themselves and also with the life beyond the school. The child is not to be taught in fragments but through well-organised and meaningful experiences. Teaching especially in the lower classes, centres round 'occupations'—congenial to the children, possessing genuine social import. An alert and wide-awake teacher seeks tactfully and unobtrusively to co-ordinate and direct into certain healthy, and fruitful channels, all the miscellaneous information and attitudes acquired by the child during his everyday life. On this foundation, he builds all the later study of geography, history, physics, botany, chemistry etc. He takes care that they are not treated in isolation from the life activities from which they have taken their origin. This method of teaching links learning with life and gives an appreciative interest in all forms of life.

**Discipline**

It is in the realm of discipline especially, where the modern education has made great strides. We teach children to obey, but we want this obedience to be a thinking obedience, not merely a reliance upon authority. Children are led gradually to discipline themselves. They are taught that there is a time to be quite and a time for activity, a time to converse and a time to listen, a time to work and a time to relax. It is being realised that it is not possible to teach by coercion : the goodwill of the pupil is always essential.

Teachers realise that many disturbed children come in the classroom. These children display hostility, indifference or withdrawal. Good teachers accept both intellectually and emotionally—all kinds children. They do not show resentment toward or condemnation of children who misbehave.

In the modern classroom, a reasonable amount of freedom is allowed. Children are led to develop a sense of responsibility along with liberty. Here discipline involves the formulation of rules of conduct by the children and evaluation of behaviour in accordance with their own goals of conduct. Children are taught to put emphasis on the positive rather than the negative, on *do* rather than *don't*. Children learn right conduct by acting in the correct manner. The teacher who is a skilled disciplinarian integrates character education into every learning situation. Punishment is outdated because it is considered useful only in eliminating a wrong response ; it has no value as an incentive for the development of the right one.

Freedom is a watchword of the new school. All kinds of superimposed and unnecessary restrictions have been wiped out. As a result, the pupils have gained such boons as the right to move about the classroom at will, to form natural groups, to talk, to choose their own subjects, to handle objects, to have a voice in student disciplinary matters and to take a large and active part in class and social affairs. Behind this emphasis on pupil freedom lies the theory that liberty generates self-discipline and stimulates a sense of responsibility.

### Teacher participation

The new school has considerably modified the status, duties and privileges of the teacher. It has brought him down from the pedestal of a dictator and has given him the privilege of being their guide and friend. In the new school, the teacher goes beyond the classroom. He shares in the making of the curriculum, as well as of the school administration. He is expected to function in the community and to contribute to its general education and progress. At the same time, he is to help in strengthening the home. He must accept the child as he comes and must meet those needs which are not being met at home or elsewhere.

During this century, an attempt is being made everywhere to find out tools and procedures for fostering the growth of teachers who are trying to teach on the growing edges of children's lives. An attempt is being made everywhere to set up good schools—a collection of the best of the cultural factors that a community can provide for its young—a place and a set of circumstances in which the child grows among his society's best tools, methods of communication, social usages and ideals.

### Teacher's non-intervention

In the new school, the teacher must withdraw more and more into the background, only preparing for the children to work by themselves. Teacher's intervention is considered needless even mischievous and this is called the Method of Intervention. The teacher must measure what is needed—like a servant who prepares with care a drink for his master and leaves it for him to drink at will. Teachers have to learn to be humble, not imposing themselves on the children in their care, but be vigilant to follow the progress and prepare all that they are likely to need for further activity.

### Parental co-operation

There was a time when teachers regarded parents as a necessary evil in education. This notion, the new school, has abandoned. The modern educator seeks the active interest and cooperation of parents in the education of their children. In the new school, every week is 'Education Week' when the school doors are open to visitors. The new school realizes that home and school share a mutual interest and responsibility in the child's total living and that without cooperation of home and school, there can not be full success in educating the child. The result is that parents and teachers meet in small or large groups to discuss their common problems. In some schools, parents assist in the office and classrooms, they participate in trips and many other social and community undertakings.

### New materials and modes of instruction

Materials for study in every area have increased enormously during the past few years. New improved books, the array of audio-visual materials etc., are indication of our new riches. Educators have found that many teaching problems can be solved partly or wholly, by the proper use of the rich experience that can be gained through these aids. We have started explaining the potentialities of these teaching materials. Now, each of the new classrooms, does not have only space for using maps, charts, pictures, specimens, models, exhibits, reference books, craft materials, picture projectors, recorders and record players, but also aquariums, growing plants, drawing boards, television, radio, everyday science experimental apparatus and the like. Every effort is made to assure that each instructional room will provide a healthful living and working environment for pupils and teachers.

A variety of self regulating, self-acting and thinking machines are being used in educational institutions. Electronic and mechanical devices are helping the teachers and the pupil, A sophisticated instructional technology based on the existing knowledge of human behaviour is coming up. Institutions and services of a new kind intended to help people teach themselves—language laboratories, programmed computers and personalised teaching aids, audio-visual aids like radio, films, television etc. and new types of instructional organisations like team teaching are being integrated into educational systems. Not only that, photographs, radio bulletins, news and live programmes are being relayed through satellites. The new multimedia approach has revolutionised teaching and learning. Students learn at their own pace. Teacher is in a position to look after a large number of children.

**School arrangement**

The tendency in new teaching is to recognise definitely the two kinds of teaching—the individual and the collective and rather to emphasise the former. There is a revolt against standardization because commonplace people will develop in a commonplace way on the material supplied but the individual possessed of the potentialities of a striking personality, will use the commonplace material in an 'uncommon place' way, so as to bring out all its possibilities. So class as a unit of teaching is disappearing ; individual and group, as units of teaching, are more in fashion.

**Methods of appraisal**

Because of multiple educational goals, a comprehensive system of evaluation is being evolved. Included in evaluation are information gained, changes in attitudes, opinions and habits of working as well as other improvements in behaviour. A variety of devices are being devised to appraise the achievement of the child in all spheres. A child's progress is considered in relation to the obstacles he has overcome. Competition grading that makes one child feel inferior during all his formative years, because he cannot move as fast as children with higher intelligence quotient do, has no place in the new school. Every child is provided learning experiences in which he can succeed. The child's progress is judged by the comparison of his own work and achievements.

The permanent records of the school are becoming more inclusive and descriptive.

**Conclusion**

The modern education, in short, is a revolt against the bookishness of the past. Education has been psychologised and the psychology of childhood is cured of the childishness of psychology from which it has been hitherto suffering. The child is placed on the pedestal of glory and the teacher's position in this respect has altogether changed. Methods of instruction and contents of instruction have also undergone profound changes and have become new and novel. Large classes, inadequate equipment, cramming for examinations, futile teaching of undernourished children are the characteristics of the education of yore. Instead of inculcating a dull reception, an uncritical acceptance and a passive spectatorship, the new methodology encourages active perception, active thinking and active acting !

In the following pages, we shall be dealing with the new methodology of education which is bringing a revolutionary change in the practice of education.

### Summary

1. A new concept of education—philosophically evolved, psychologically developed and socially based is emerging.
2. Creativity and a way of excellence is encouraged in all endeavours whether of intellectual, aesthetic or moral import.
3. There is a switch-over from teachers who are specialists in teaching to teachers who are specialists in pupils.
4. Every attempt is made to meet individual differences.
5. Through group processes children are drawn together by similar interests, by pen friendships, by the setting of common goals, by committee activity in which several children share the work for group purposes.
6. Modern education is activity-centred.
7. Knowledge is imparted in integrated and correlated form.
8. Freedom is the watchword of new education. Positive measures are preferred to negative ones.
9. The new school has considerably modified the status, duties and privileges of the teacher.
10. Teachers abstain from interfering.
11. The modern educator seeks active interest and cooperation of parents in the education of their children.
12. Materials for study in every area have increased enormously during the past few years.
13. Individual and group teaching is preferred to class teaching,
14. A comprehensive system of evaluation is being evolved to assess the multiple goals of education.

## Questions and Problems

1. How has the modern conception of education changed the traditional curriculum and methods in the new schools ?
2. What are the significant trends in modern education ?
3. "The teacher is to dangle the carrot at an appetising distance from the donkey's nose......" Is it a correct role of the teacher ? What is the role of a teacher in the present century ?
4. School teaching once followed the simple formula of "assign—study—recite."

   "In the modern school, the teacher's role is to share to the fullest extent with his pupils his greater experience and maturity."

   What is the difference between the teacher's role then and now ? How best can he play this role ?

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# 3

# THE TEACHING-LEARNING PROCESS

*Nature of teaching—Teaching as an art—Nature of learning—The process of learning—Conditions of learning—Main characteristics of learning—Difference in adult and child learning—Maxims of teaching—Good teaching—Beginning to teach—Classroom problems for beginners—Summary—Questions and Problems—Bibliography.*

"And what is teaching ? Ah ! there you have the worst paid and the best rewarded of all vocations. Dare not to enter it unless you love it. For the vast majority of men and women it has no promise of wealth and fame, but they, to whom it is dear for its own sake, are among the nobility of mankind. I sing the praise of the unknown teacher, King of himself and leader of mankind"

—*Henry Von Dyke*

"There is nothing more inspiring than having a mind unfold before you. Let people teach who have a calling. It is never just a job."

—*Abraham Kaplan*

## Nature of teaching

One of the basic truths in education is that the quality of education depends largely upon the quality of the teacher.

Whether the teacher be seated at one end of the proverbial log with the student perched at the other end—uncomfortable positions for both of them—or whether the teacher is in the best equipped room of a most modern school : whether the teacher is at work with a small group of students or is on a television screen that is seen by tens of thousands : whether the teacher is a person or whether the "teacher" is a programmed text-book, it is unlikely that the students will get a superior education unless the teacher is superior. With good leadership and appropriate teaching aids, the teacher's effectiveness can be enhanced, but the most ingenious plans of inspired administrators and the best array of instructional devices are of little avail if the teacher is "ignorant, unskilled or indifferent."[1]

And what is teaching ? Ah ! There you have the worst paid and the best rewarded of all vocations. By mercenary standards, teaching is poorly paid. Its riches are of another order, less tangible but more lasting—the satisfaction of personal fulfilment. There is little reward in teaching for those who worship Mammon. There is much for those who worship God. Teaching is thus not everybody's cup of tea. It is not a soft option. It requires blood, sweat and tears :

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[1] T.M. Stinnett, *The Profession of Teaching*, New Delhi, Prentice-Hall of India (Private) Ltd., 1965, p.v.

Teaching is more than standing before a class and applying a few specific techniques. It is not merely presenting text-book information and then testing the student's ability to repeat it : there is no magic formula for transforming knowledge from the teacher's mind to align the pupil's. Teaching is not a mechanical process. It is an intricate, exacting, challenging job.

Teaching is not a monologue but a dialogue; a dialogue in which one partner is vocal, but the other partner may, by simple expressions on the face, by some gesture or exclamation or by brief participation in the form of a query, partakes in the dialogue.

Most other professionals who deal with children can afford some amount of specialization: much of the physician's attention is given to the diseased body : the psychiatrist is concerned largely with the disordered personality—the teacher must pay attention to the entire complex organism. He is concerned with the development of the whole child—intellectually, emotionally, socially, spiritually, and in some degree, physically.

In the light of this requirement, the modern teaching process stresses three fundamentals :

(a) Emphasising the learner.
(b) Guiding the learner.
(c) Promoting learner Development.

### (a) Emphasising the learner

The child is the focus of the limelight today. Gone are the days when much of the classroom time was devoted to sing-song, verbatim recital of text-book material and unmotivated drills that were largely meaningless to the child. Today's teacher makes a much greater effort to assure that the subject-matter is appreciative to the capacity of his students. He has begun to realise that learning involves the total welfare of the child. Subject-matter and mastery of basic skills are important. The teacher today must be interested in facts and skills as such, but his concern is their use as tools that contribute to the child's development. Today's teacher emphaises the learner : he looks to the students as the starting point for planning learning experiences. The teacher today is fully an *educator*, vitally interested in developing all the capacities of the child.

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### (b) Guiding the learner

The child is of primary importance : guiding his learning experiences, as a second principle of the teaching process, ranks next. The child should begin to learn when he becomes purposefully, involved in the learning situation. He needs lectures and demonstrations, but he will become skilled only when he begins to participate. The teacher must guide but at the same time remember that learning is a function of the learner and is based upon experiencing. There are still classrooms in which the teacher plans and dominates more than he should : to him the child is virtually a puppet. The teacher who is eager to have his classes give polished public performances often robs his pupils of real learning opportunities. Teaching cannot be boiled down to a convenient formula of "telling and testing". It is the complex art of guiding pupils through a variety of selected experiences towards the attainment of a widening field of learning. A fine teacher creates in the classroom, on the play-ground, and in the co-curricular activities—situations that contribute significantly to the student. He stimulates interest by every legitimate means he can devise ; as the pupil maps out and proceeds with activities, he renders technical assistance. The student must do his own learning, but the teacher can aid by pointing out unnoticed obstacles, answering questions and furnishing supplementary informations or sources for research, helping the pupil analyse his difficulties, and providing encouragement to new sources of interest in the activity. At appropriate points he can help the child evaluate his progress. Thus, the modern teacher thinks of himself as a guide rather than as a taskmaster.

### (c) Promoting learner development

Each child has his own distinct potential and limitations. The final extent of realization of his possibilities depends on the richness of the child's environment, his initial interaction with it, his later contacts with it, and his ultimate use of the awareness he develops in himself of it and through it.

Growth, as the general educator is particularly concerned with it, is largely a process of maturing through experiences. The variety and scope of a child's achievement depend upon both the quality and the kind of his experiences. A superficial contact with environment can result in stunted development. Misdirected experiences frequently lead to undesirable behaviour patterns. Learning *does* result from aimless activity, but the school is organised specifically to provide the most efficient and productive type of educational programme possible. All activities are, of course, not of equal usefulness. It is a part of the teacher's mission to help the student learn to select and follow through those of greatest potential worth to him.

## Teaching as an art

Teaching is considered to be an art. Children are the raw material with which the teacher has to deal. Addison points out that as sculpture is to a block of marble, education is to the human soul. The teacher unconsciously designs the child entrusted to him. The teacher has a purpose and he modifies the child accordingly.

Teaching is a sublime art. It is impossible to separate the teacher and teaching. The teacher, in fact, mirrors himself into the child ; he puts an indelible stamp on the young, growing plastic mind of the child. The child generally takes after the teacher.

### *Difference between the teacher and the artist*

The artist handles inanimate material and imparts life to it through his work. He gives any shape he likes to the material. He gives expression to his own ideas. He imposes his will on the material with which he works, and creates an object. Can the teacher do that ? Certainly not. The teacher cannot give any shape to the living material he comes in contact with. The child is a growing, developing, human being with a will of its own. He reacts to teaching. As a matter of fact, learning is interaction. The teacher is not to make the children blind followers but intelligent leaders. He has no hammers and no brushes. He cannot touch the child yet he is to make an impact felt, introducing changes in the behaviour pattern and ultimately the personality of the child. Not only that. His influence should prevail even if he is not there. As a matter of fact, his greatest strength lies in being dispensable.

Teaching is an art and the teacher an artist so far as he—

(1) creates learning situations ;
(2) motivates the child to learn ;
(3) arranges for conditions which help in the growth of the child's mind and body ;
(4) utilizes the initiative and play urges of the children to facilitate learning ;
(5) turns the children into creative beings ;
(6) inspires them with the nobility of thoughts, feelings and actions ;
(7) makes them self-reliant and resourceful ; and
(8) helps them to be what they can be.

The teacher has to be a very careful artist. He has to create a new life pattern full, vigour and activity.

## Nature of learning

Learning is the pivotal problem in education. The main aim of education, as we know, is to produce desired changes in the behaviour of children, and when these changes have taken place, we say, the child has learnt. We expose the children to certain experiences; these experiences produce changes in behaviour patterns. We designate such changes by the general term "learning". Again, learning is a natural outcome of the individual's attempts to meet his basic and normal needs. Julia Weber points out in a paper on child development that children *want* to learn, to know and to "be able". They do not have to be "teased" or "techniqued" into growing. As Donald Snygg states, "The learner is not the passive victim of his environment." Learning can only take place in response to the *felt need* of the child. Learning is a complex process. To put it in simple words we can say, that it is the process by which an organism, as a result of its interaction in a situation, acquires a new mode of behaviour, which tends to persist and affect the general behaviour pattern of the organism, to some degree. It consists of a more or less permanent modification of behaviour. Changes in manner of acting, ways of expressing one's thoughts, attitudes and feelings are called learning. In short, learning is an emergence of a new experience.

In school, the major problem before the teacher is to 'cause learning' in the pupils. In the school situation, various elements are involved in the process of learning—

(*a*) In the first place the learner or the pupil is involved. Unless the pupil is prepared or enabled to learn, learning cannot take place. Learning is a very personal experience. We cannot "give" this experience to a child. Carl Rogers says, "I have come to feel that the only learning which significantly influences bahaviour is self-discovered, self-appropriated learning". Nathaniel Cantor has so well put it "All genuine learning, in the final analysis, is self-education."

(*b*) In the second place, "the experience or the situation provides that experience which causes learning." These situations are provided by the school in the form of subjects, activities or atmosphere and the teacher organizes them for the pupils. These experiences must meet the psychological needs of the children. They should be meaningful for the children. Greater understanding of what is taught produces rapid learning, better retention, and better adaptation to new conditions.

(*c*) In the third place, the teacher is the key person in the learning process. He is to organise learning experiences for children and the child would learn by reacting to such experiences. The teacher cannot *make* a child learn. He can only facilitate the learning process by properly organising experiences and creating a conducive climate for learning, e.g., arranging facilities, providing materials and gadgets, managing social relationships and activities which promise rich, worthwhile productive living for children.

(*d*) In the fourth place, the climate or the environment is an important element in learning in school. It can stimulate or retard learning.

**The process of learning**

Learning is a process. It involves changes occurring over a relatively shorter period of time which enable the learner to respond more adequately to the situation. Thus, *we learn* to play the piano, we *learn* fractions, we *learn* arithmetic. On the other hand, we *grow* in intelligence and we *grow* in moral stature. In some cases, the factor of growth and learning will be so inextricably intertwined that either or both words will need to be used. There are various aspects of the process of learning. We can ensure effective learning by paying attention to these aspects.

1. *Needs of the learner* : As stated earlier, learning can only take place in response to the felt needs of the learner. When the need of the learner is strong enough and he sets definite goal for achievement, learning will be more effective. Educative process must be geared to the learners. The teacher must show them their needs. Only then he can make them start on learning.

2. *Readiness to learn* : Learning readiness is essential for effective learning. Specific learning will not occur until children are ready for it. Readiness is the capacity and willingness to learn. The next lesson to be taught, should be that for which the human being is at that moment reaching out. A teacher is universally bound to teach not by command but by search. In a very true sense, all studies of physical, intellectual, social and emotional growth bear directly upon the state of readiness. If the level of learning capacity is higher than that on which the instruction is pitched then to the children, the materials of instruction are only"kid stuff". If the materials are pitched on too high a level for the children's capacity, they become frustrated and use those mechanisms of adjustment common to frustration *i.e.* withdraw, over-compensate, act aggressively or day-dream. Whatever else is done there is no longer joyful participation in learning the materials of instruction.

The learning readiness of children is quite variable. No one learns at an even rate; there are hills, valleys, and plateaus in any curve of learning that covers an extended period of time.

*To try to discover what the student is ready to learn, and to teach him just that, is the art of teaching.*

Nothing is gained by attempting to teach someone who is not emotionally, physically, intellectually and experientially ready for what is to be taught.

Seeing whether the children are ready for certain kinds of learning is a task that calls for skill and sensitivity. Sometimes, children are not ready for a certain subject if it is presented one way but can learn from a different kind of presentation. So, a teacher must be careful about these.

It is essential that the child has a healthy attitude towards his learning problems—only then will he be ready to work. The more we can employ the instinctive tendencies and effect their sublimation, the better the result will be.

It is very essential that the child's readiness be ascertained before beginning the learning programmes. As some kinds of defects in development, illness, physical, mental or social handicaps affect readiness, these must be known and checked before jumping to teach. The teacher must understand the experiential and maturational background of children in order to decide whether they are ready for certain kinds of learning.

Because of the nature of mass education, we can never achieve readiness all the time of all students. At any given point in time, some children are over-ready, and some are not ready. Such individual differences are inevitable. But as teachers come to understand their students better as individuals than as groups, they will improve the efficiency and effectiveness of their teaching so that the variations of the law of readiness will be fewer in number.

3. *Situation* : Situtation, as discussed earlier, is an important aspect in the process of learning. The learning situation provides opportunity for learning. The kind of situation available to the learner determines the quality and speed of learning. The main task of the teacher is to organise good learning situations for the child. Informal learning situations are found in the home environment, community environment and school environment of the child. By providing good learning situations, we can have good learning. Formal learning situations can be provided by the teacher to make learning systematic.

4. *Interaction* : The child, with his felt needs and the goal he sets for himself, learns by interacting in the learning situation. What is interaction ? It is just the process of responding to a situation and getting satisfaction or otherwise from it. Learning is caused by this interaction. The more numerous and more satisfying the interactions are, the better the learning will be. Interaction can be in the form of observable physical movements or emotional reactions or verbal reactions. The learner experiences an intense joy in solving problems, or when he is able to achieve an answer.

When the learner accepts the statement of the teacher and has not searched for the answers, has not utilised either facts or memory he feels no special sense of achievement. No proper interaction takes place. No wonder, he remains ignorant and uninformed. *Learning takes place when insight is gained, when the processes are understood—in short when interaction has taken place.*

## Conditions of learning

What conditions in the learning process make for effective learning is a very important question to decide. We know, learning varies in its effectiveness. Let us see the conditions which can ensure good learning:

1. *Motivation* : Learning, as discussed earlier, can only take place in response to the felt needs of the pupils. All learners learn more when they involve not merely their heads but their hearts also. The fire of a true interest in literature or art or mathematics will result in more pupil devotion to work, more reading, more study than anything else. Pupils soon learn to make effort where they have their interest. Strong motivation is, thus, a precondition for effective learning. The thoughtful teacher devotes himself to motivating the child in various ways to increase the interest. A strong and continuous desire to learn from the situation leads to sustained learning.

Pupils have interests and needs, which continually steal their attention. It is necessary that teachers arrange work which permits students to satisfy unintellectual needs while they learn ideas.

2. *Psychological security* : For learning to take place, participation of the learner is essential. The learner would not participate freely unless he feels secure. The teacher cannot teach the child by threats.

The learner must be given the stimulating environment—only in this environment, the pupil is encouraged to try and, therefore, more likely to learn. As the likelihood of disapproval lessens, inhibitions disappear. This view is supported by several findings : Warm, considerate teachers generate a great interest in school work (Reed, 1961). Most of the studies show that pupils give high ratings to teachers who respect their rights and wishes and encourage their growth towards independence.

An authoritarian teacher, who is strict with his pupils, does not usually inspire confidence, gives no chance to plan, to make errors, and then to learn to plan better. Too much freedom also does not ensure psychological safety as it leads to frustration.

Good discipline does not require every student to be in his place every pupil silent save one, everyone focussed on the speaker. In such a classroom, *the listeners may be learning nothing.*

Remember, discipline has not failed when six eager children burst out with an idea at once, so long as they are willing to listen to each other.

It is, therefore, necessary for the teacher to find out how freedom is useful, threatening or unfruitful, and how it contributes to developmental learning. The orderly, systematic, teacher gives the best form of psychological security. He can create the climate conducive to good learning.

3. *Experimentation* : Learning is an active process : no learning is effective unless the learner exposes himself to the learning situation. Learning is exploring, conceptualizing, experimenting, interacting. Experience with the concrete situation is the base for understanding—it is the brilliant light to the entrance to our cave. Learning cannot be *given* to the pupil—he can only learn by being an active participant. Learning is unenforceable. Only doing can bring learning. A student learning writing can only learn by writing himself. A student learning sums in mathematics learns better by trying out the sums himself.

This is true not only with the practical subjects but also with concepts, and abstract relations. Images of concrete objects and events are a necessary background for comprehending an abstract relation. Whenever an activity puts the pupil into intimate contact with real objects, he amasses experiences that can clarify theoretical concepts and principles.. The child with a garden watches it closely everyday and builds up intimacy with soil and insects and plants. He knows from digging that water is stored beneath dry top soil. This illumines facts in his geography which otherwise would have little significance. Again, take the example of a rainbow. It defies description. Only experience with the real thing acquaints a person with its characteristics. Rather than laying emphasis on memorising facts and principles, the child should be helped to discover principles and concepts. This will lead to creative learning which will be more interesting and effective than mechanical or rote learning.

4. *Feedback* : A student learns more rapidly and more thoroughly because he is forced to concentrate on material before him and because he gets immediate feed-back on his progress. It is not uncommon that after solving a problem, the child is interested to know whether his solution is correct. This is called feedback. Feedback is the evaluation information about the act of learning. Results of the achievement of the children must be fed back to them from time to time. It will keep the pupils motivated and interested to learn.

5. *Practice* : Another important condition in the process of learning is practice . 'Practice makes perfect'– the proverb implies

the importance of repetition in bringing certain habits up to a point where they come naturally to him.

The factor of practice is particularly true of skill learning. No amount of theoretical reading can make us good at spinning, wood work or agriculture. Their repetition is hardly adequate for the response to occur certainly, quickly and accurately—an intensive practice or drill work is required for proper learning to take place. Fixation occurs in using the principle involved in several similar situations. Thus, it is essential that the teacher plans the learning situations in such a way that practice is built in them, to make learning more effective and meaningful.

6. *Belonging and configuration* : repetition, practice or drill whatever we may call it, will not result in learning, unless and until some sort of accepted relationship is formed. Learning, in its very essence, is a re-structuring of experience, which means that processes and structures are perceived in a new relation, a new pattern. Unless the experience is re-structured, no learning takes place. Only after re-structuring, the learner can integrate and organise the experiences in certain required relations. Only then will learning take place.

Comprehension, understanding, new insights are large in human learning. Sometimes, we work long hours on the solution of a puzzle only to have its solution flash into our consciousness and become easy and permanent.

7. *Integration* : Integration comes in perfecting the learning process that much short-circuiting in the process may take place and the process easily held in mind and carried through to a successful solution in much less time.

**Main characteristics of learning**

1. *Learning is growth* : Learning is actually a form of growth. It is some thing that is natural, and inevitable. It is this growth factor in learning that gives it its drive and push. Through his daily activities, the child grows both mentally and physically. Great educators are one in their emphasis on this organic characteristic of learning. Pestalozzi symbolised his meaning by a tree, Froebel by a garden, Marietta John by a pine branch. Thus, learning is growth through experience.

2. *Learning is adjustment* : Learning is basic to our attempts to adjust ourselves to our environment. Learning helps the individual to adjust himself adequately to the new situation. In the words of Gates and others, "Learning may be thought of as the progressive change in behaviour which is associated on the one hand with successive presentations of a situation, and, on the other, with repeated efforts of the individual to react to it effectively." School learning

can only take place if there is a definite adjustment toward the goal of learning. The adjustment is determined by the general attitude which a student has towards school, his work in school, his particular teacher on the one hand and the immediate problem on the other. Unless there is some direction given to his experiences by adjustment, very little learning takes place. The factor of adjustment, in fact, affects the whole process of learning. It is related to the materials brought out of one's past experiences. It decides what is fitting for the occasion ; and helps the pupil know when he has solved the problem. Learning, in short, means adjustment to the new situations. When we find ways of adjusting our behaviour satisfactorily, we are learning something.

3. *Learning is organising experience* : Learning is not just an addition of new experience nor is old experience summed up, rather it is a synthesis of the old and the new experiences which result in a completely new organisation of pattern of experiences. This organisation of experiences involves the elimination of many habits unnecessary in the final consummation of the act. Facts are arranged and rearranged in proper relation and then appropriate learning takes place.

4. *Learning is purposeful* : All true learning is purpose-goal-directed. When the learner finds that his desires are fulfilled, learning is effective. The studies on forgetting show that irrelevant material is more rapidly forgotten than relevant material.

5. *Learning is intelligent* : Meaningless repetition does not produce permanent learning. Learning takes place when an insight is gained, and the processes are understood. Only understanding and intelligent repetitions can ensure lasting results in learning.

6. *Learning is action* : Learning is the natural outcome of the individual's attempts to meet his basic and normal needs. All genuine learning is self-learning. So the individual must become an active participant in the learning process. Only participation and doing effect learning. All the progressive methods of teaching, the Dalton Plan, the Project Method, the Montessori Method, the Kindergarten, the Basic Education lay stress on this characteristic of learning.

7. *Learning is both individual and social* : Learning is more than an individual activity ; it is a social activity too. No one can deny that the social agencies like the family, the community, the gang, the films, the religious places, and other institutions have a tremendous influence on the child and are always affecting his behaviour pattern. Individual mind is affected by the group mind consciously as well as unconsciously.

8. *Learning is unenforceable* : Human learning is a matter of human action, it cannot be enforced upon the human beings. Most

pupils are, generally, able to comply with normal expectations. But when any child is not, the teacher must wait for that child to be ready for learning, or he will destroy the very work which is being attempted. It is a characteristic of learning that it is unenforceable.

9. *Learning is a product of the environment* : Learning cannot take place in vacuum – it can only take place in relation to environment. The environment should be healthy and rich in educative possibilities. It must be conducive to learning.

10. *True learning affects the conduct of the learner* : True learning produces changes in the conduct (behaviour pattern) of the learner. Every experience produces a change in the mental structure of the learner which in turn affects the conduct of the learner. This, in short, is the goal of learning.

11. *Learning is whole* : The human organism as well as the amoeba function as a whole. Wholesomeness, as distinct from splittting, is a central principle of life. The concern of the school for learning subject-matter and skills can be realised only as subject-matter and skills function genuinely and realistically in the life of the learner. At all stages of development, learning activities must seem to the learner to be related to his real concerns and his genuine needs.

12. *Learning frequently depends upon insight* : Insight has sometimes been described as the "flash of understanding". It occurs when a situation, originally without meaning, suddenly becomes charged with meaning, or when the solution to a problem or the way to a goal, becomes apparent. The ability to gain insight depends upon interest, previous knowledge, and intelligence. In the case of a dull child, it will be necessary for the teacher to give more than usual assistance to enable the him to grasp the meaning underlying a situation.

## Reference in adult and child learning

The adult learns through "concentration of mind" on essentials, choosing merely those which are useful, rejecting the rest as undesirable because they want the shortest cut to success. Children, on the other hand, learn, in nature's way, with all the senses fully active and eager, receiving the perpetual stream of ideas which come from the heart of nature, gathering facts and knowledge—by such scatter of mental energy through unexpected surprises, with their ever alert attention from nature and life. It is the utter lack of purpose in child life which is important. The child, because it has no conscious object of life beyond living, can see all things around it, can hear every sound with a perfect freedom of attention, not having to exercise choice in the collection of information. It is his restlessness which leads its mind into knocking against knowledge. Like a stream going over pebbles it hurts itself against obstructions and through them finds more and more velocity.

Thus, as there is a lot of difference in adult learning and child learning, it is not at all advisable to try to bring up children in the adult way, demanding adult behaviour from them, severely smothering their restlessness which is of infinite value for their growth in body and mind. It is useless to restrict their learning process to narrowly utilitarian objectives and excluding all that is not strictly relevant to his purpose. If we do that, it will be just forcing on the flower the mission of fruit.

**Maxims of teaching**

A good teacher should be familiar with some general maxims of teaching. Now, we shall proceed to discuss them

1. *Proceed from the known to the unknown* : It is said that old knowledge serves as a hook from which the new can be hanged. So, order that the new knowledge may be acceptable, the teacher must try to win over some part of the child's past experience. To act as it were, as its host, ideas, sensations, and impressions can be apperceived or assimilated. When partially familiar—they fit into the relevant mass ; a foreign idea finds the mind but a glass wall on which it can gain no foothold. So, an attempt has to be made to remind the pupils of what they know already, so as to be ready to pin on to it the new knowledge. While using the previous knowledge the teacher must see that it is perfect, definite and complete. The teacher must search diligently to find which of their experiences have been such that by recalling them to the child, he is likely to ensure a ready welcome for the new knowledge.

2. *Proceed from analysis to synthesis* : Analysis consists in taking a thing apart into its elements. Synthesis is the complement of analysis. When the child comes to the class, his knowledge is incomplete, indefinite and imperfect. The teacher is to round it off. Therefore, the teacher should start with analysis to view the complex whole through its constituent elements. Analysis is to be employed chiefly to correct and systematise the inchoate teachings of everyday experience rather than as serving an end in itself. Its purpose is mainly to prepare the way for further synthesis. Thus, analysis must be followed by synthesis otherwise analysis is useless. Analysis makes the thing comprehensible and puts it in a clear and broad framework. Synthesis, afterwards, makes it definite and fixed. The teaching procedure should be neither purely analytic nor purely synthetic but a judicious blend of both.

3. *Proceed from the simple to the complex* : The teacher should keep up the interest of the pupils in the lesson by presenting easier

and simpler material to be followed later by complex and difficult material. Simplicity and complexity should be determined from the child's point of view. Whatever material is taught to the child, must be graduated.

4. *Proceed from whole to part* : Whole is more meaningful to the child than the parts of the whole. The part approach to learning tends to ignore the need. Learners have to develop some kind of a frame of reference that will help them to relate one aspect of what is to be learned to its other aspects, as well as to their previous experience. J.P. Guilford and E.B. Newman indicate that learning proceeds more rapidly and is retained better when the material to be learned has meaning, organisation and structure. May Seagoe also concluded after her research that the "whole" approach was generally superior to the "part" approach. "Whole" learning is generally better than "part" learning because the material to be learned "makes sense" because its various parts can be seen *by the learner* as interrelated, and because he sees a relationship between the central idea of the material to be learned and himself.

Even while deciding the "whole", the teacher ought to be careful. The "whole", for slow readers should be smaller than the "whole" for fast readers. If the whole with which the learner is presented is too large to make sense to him, little learning, if any, will take place because he is being asked, in effect, to learn nonsense or if the learner is presented with a series of "parts" which to him appear unrelated to anything in his experience, that is which do not make sense, again, we are asking him to learn nonsense. Thus, it is essential to form meaningful wholes.

5. *Proceed from concrete to abstract* : It is very important for the child to be able to abstract ideas. To achieve this purpose we should approach the child via concrete objects, activities and examples. The imagination is greatly aided by concrete material. So, while teaching abstractions in any subject, we should take help of concrete things as far as possible and then lead to higher levels of thinking.

6. *Proceed from the particular to the general* : Particular facts and examples should be presented to the children before giving them general rules and principles, as they are easier to follow. The process of induction is easier to comprehend than the so-called deductive one. In fact, the study of particular facts should enable the children themselves to arrive at general rules. The process of learning can only become complete if we proceed from particular and finish with the general rules or definitions. So, the pupils are to be disengaged from the particular as soon as they can apply the general truths to elucidate further facts. Induction and deduction must go side by side.

7. *Proceed from empirical to rational* : Empirical knowledge is

based on observation and first hand experience; rational knowledge implies a bit of abstraction and argumentative approach. It is a general feeling that the child feels the rational basis for any knowledge much after he has experienced it in his day to day life. For instance, plane geometry would make better sense, if it were taught in the practical context of everyday life, instead of in the format of highly abstract theory. It is always good to begin with what we see, feel and experience than with what we argue, generalise and explain.

8. *Proceed from psychological to logical* : We should proceed teaching in the psychological way, i.e., taking into consideration the child—his interests, needs, reactions and mental make-up. To make a good start, we should present the material in a logical way. Firstly, there should be the selection of the matter, then the logical approach to arrange the matter in proper sequence.

9. *Proceed from the actual to the representative* : The fact that child learns more quickly from the actual and real objects from their representations has been taken for granted. To learn something about a post office will be more rapid and vivid from an actual visit to a post office than from a picture or a model or even a film. So, wherever possible, the teacher should show the real object. This is particularly needed in the earlier classes as the store of information of small children is limited. For them, it is always safe to proceed from concrete to abstract, from actual to representative, from near to distant.

**Good teaching**

Whether the teacher is teaching in the top levels of the university, in a school for adolescents or in a school for children, good teaching demands skill in the same basic elements of good teaching. Much is being expected of the teacher today. Just as medicine, once a matter of pills and potions, has become a tremendous tangle of symptoms and specifics, so teaching has become complicated by the increasingly intricate phases of human personality and society. Whereas this is true of all teaching, it is more true as far as teaching children in the school is concerned. Here, the teacher deals with the best of humanity, the young, the more open, more easily pleased, less sophisticated and as yet, less disillusioned than the old. In the schools, teaching provides to the teacher an opportunity for doing something creative, that is, for moulding personalities and minds. The following paragraphs shall indicate some of the principles of good teaching which should be borne in mind by the teacher while he is dealing with children. Since the goal of teaching is desirable learning, the quality of teaching can be tested only in terms of the quality of learning to which it leads.

1. *Recognizes individual differences among pupils* : Each child has an inbuilt pattern of growth. His temperament, reaction time,

size and co-ordination control are unique. The range of potentialities and interests is as wide as the population. Consequently, the variability of achievements in any field is tremendous. The teacher can obtain most effective results by working with the child's individual qualities. If he treats each child as a unique personality, he will realize that there can be no mould into which all children can be pressed. He must discover the growth patterns and the individuality of each child, and then try to find acceptable ways for this individuality to be used to enhance learning. He will then have to place a premium upon differences. He will recognise that individual differences bring strength, zest and more opportunities to a group.

The teacher's concern with uniqueness will lead him to help each child secure the nourishment his soul requires. To cater to various types of pupils is one of the important elements of good teaching. Only this way can equality of opportunity be provided for all children. Standardized procedures do not fit everybody. If patterns and directions are followed to the letter, the results can be disastrous—the personality frozen. "We need to be so considered" : the teacher should see that this need is satisfied so that the individual pupil is not lost in a mass. This is one determinant of good teaching.

2. *It is Need-centred* : Learning can take place if there are felt-needs on the part of the pupils. The teaching pioneer starts out with no map of the trail. He is content to know the direction. His experience will never be wide enough to cover all his needs. What is the result ? He will hardly have started before he discovers, that in spite of all he knows, he lacks certain specific knowledge. He may be an expert on China, only to find that his pupils are enquiring about India...The response of his students will not be as anticipated. He will be forced to study his pupils' response and adjust himself to them. He must show them their need and himself recognise that need to make teaching effective.

3. *Improves the quality of living of every child* : The teaching profession is becoming mature enough to evaluate its efforts in terms of human behaviour. Recently Alfred North White-Head, a great philosopher said, "There is only one subject-matter of education, and that is life in all its manifestations." The mastery of knowledge and skills should not become an end in itself. It is essential, for example in language, that students form and retain proper reading habits. In social studies, the central purpose is to teach pupils to behave as good citizens.

4. *Interesting* : We hear of "dull subjects" and "interesting subjects"—this has nothing to do with the subject. It is a function of the teacher and especially of his interest in the subject and his pupils that has got something to do with the "feeling" of the subject.

Youth is interested in games, pictures, film stars, and hero worship. The teacher should know their interests and use them in his teaching. Things have to be tied up with what children know, what they have done, what they have seen. The teacher should know the magic of creating interest and maintaining it.

5. *Kindly and sympathetic* : The teacher should be witty, never sarcastic, critical or discouraging. The teacher should see that no work should go unrewarded. Pupils like to be recognised, to be approved by their fellow beings, to feel that they have '*a place in the class*'. The worst of the pupils has some quality. The teacher should recognise it, use it, even if at times he has to invent almost purposeless jobs and situations. The teacher should have sympathetic understanding of those whom he teaches. When the pupils fail to do well, see your faults first and those of your pupils afterwards. Before you ask them 'do it again', say—'let me try and explain it again in a different way'. This persistent effort will breed in them something of the same kind—a determination to stick it out. A good teacher always hides his disappointments from the pupils and shares the 'distinctions'. Good teaching demands courage to withstand those who are apathetic, cynical and obstructive. Thus, good teaching must create an atmosphere of acceptance, understanding and sympathy.

6. *Challenge the child to learn* : Learning occurs when there is an overlapping of interests and concerns. As Khalil Gibran has said beautifully :

> No man can reveal to you aught but that which already lies half asleep in the dawning of your knowledge.[1]

It is doubtful if a teacher teaches a child anything except that which is his concern. Like interlocking circles, the overlap is the significant part, for that is where learning occurs.

7. *Sense the productive moment* : Great teachers realize that there are teachable moments, and sense when these moments are going to occur. They also cause them to happen. The sensing process does not necessarily occur on the conscious level; but the sensitive teacher tries to be on hand when the time is ripe for that flash. He sees the hands go up that never shot up before. He contrives a situation that draws out the little one who has been shy and diffident, who has learnt to distrust his own commonsense. He senses the moment when a comment may be telling.

8. *Create the larning situations* : Pupils will learn by participating in a purposeful activity. So, the teacher must keep learning alive and zestful. Childhood is the time of adventure, wide-eyed

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[1] Khalil Gibran, *The Prophet*, New York, Alfred A. Knopf, 1923, p. 64.

speculation, activity. The teacher must help sustain it. One cannot keep youngsters immobilized and expect them to learn. They must be active. The teacher must see that they have activity, good humour, in each day's activities.

9. *Causes, facilitates and promotes learning* : If the pupil, who is learning, is working for himself rather than for the teacher, it can be said that learning is being promoted. The child's conformity to a prescribed classroom programme is no sure mark of learning. Most pupils are clumsy at learning because they have not been properly instructed. It should be a part of a teacher's task to create conditions as enable the pupil to learn and learn well. Good teaching is stimulating, it is just exciting enquiry and preparing the mind by making it up to a desire to know. It is not giving to a child the results before they are desired or they have been sought for. It is necessary that pupils' purposes, planning, recitations and discussions are properly motivated through rightful procedures. If it is good teaching, the child should have the adventure of the intellectual hunt which opens, new windows in his mind, stimulates his imagination, stirs, his interests, encourages his curiosity, and gives him confidence. Bad teaching on the other hand, will freeze the child's intellectual eagerness and convert him into an efficient parrot.

10. *Conforms to the aims of teaching* : Society invests in schools in order to get more and better answers to the many questions that perplex it. In a world that changes so rapidly, the methods adopted in the classroom should be in tune with progressive trends in education. The teacher cheats the child of a part of his education unless he permits him to engage in all three of the closely related aspects of a learning situation—namely, planning the experience, execution and evaluation. Autocratic method of teaching is not in tune with modern democratic aims of education.

11. *Encourages general development* : The teachers, most admired by the students, are those who take a personal interest in them. Pupils have been asked by many investigators to tell which teachers helped them most, and why. Invariably on the list of qualities are phrases like these; "He approaches us as if he considers us intelligent." "He makes you feel you can do the work." "His class is like a happy family." Pupils do not mind insistence on their best effort, but they want the teacher also to recognise their difficulties and help them meet the standards. A teacher who sets the pupil's eye on a peak and helps him select a path that gets him there, is always liked and appreciated. So study technique and method by all means, study psychology and philosophy, but remember that in the end education is something to do with boys and girls and not only with the tricks of a trade or the theories of pandits. Human touch is most important.

12. *Consideration of the social background of the learners*: It is a hard fact that the learner cannot be considered aside from his environment. In the words of Spears, "He always has his feet mired in his own particular environment. Some of its elements are common to the soil of others in the class, but many of the features are peculiar to his world alone...Environment is not a cloak that is shed upon entrance to the school house. It is the mud on our feet that we carry around with us, the mud that we cannot shake off." Good teaching must integrate, rather weave the social and physical environment, with the subject-matter. It must draw from a rich experience, varieties of settings ; only then teaching will become alive.

13. *Cannot be tied to any one method* : For example, project method cannot be approved wholly for all the situations : Lecture Method cannot be condemned outright ; and Discussion Method cannot be recommended for all the problems. It may be pointed out here that method *per se* is no guarantee of the quality of instruction. All methods under certain circumstances, will result in poor teaching. The nature of the subject. the ability of the teacher, the status of the pupils, and the availability of instructional materials—all these determine which method will achieve the best results. Good teaching adapts methods to purpose, content, pupil status, and teacher ability. It permits and encourages the use of a variety of methods. It does not seek perfection in any single method.

14. *Dynamic* : If the teacher has to get something accepted, he has to persuade. He has to give off sparks as the Americans say. He has to make the pupils catch his enthusiasm. He should be able to relax and laugh. A doctor sometimes taps a patient to get a reaction from her when she is unresponsive. A teacher similarly has often to use a 'shock tactic' to shake up confused minds to cure boredom in a single stroke. The teacher should know how and when to inject his shock and when to do just nothing.

15. *Reduces the distance between the teacher and the taught* : Teachers should come out of the ivory tower, with its intoxicating sense of power, down to the realities of life. The teaching-learning process is a human affair between a unique teacher and a unique learner. Let that unique tie be established as the teacher need not only be a worshipper at the shrine of learning but a missionary in the service of youth.

16. *Well-planned and systematic* : A good teacher should study the mental make-up of the pupils he teaches, study their requirements and attempt to match his teaching to their mental and physical needs. Only then there will be effective learning and pupils will enjoy their work and take pride in it.

**Beginning to teach**

We are living in an age when heavy demands are being made upon the teacher. The increasing enrolment of children in the schools, parents remaining out for work, the changing philosophy of education, the recognition of individual differences, the increased emphasis on the importance of the learning process and the numerous techniques and plans warrant that the teacher must be an extraordinarily well qualified person for the job. He should not only be born but also made to this profession. He must have chosen this profession, not been drifted to it. Let him look ahead to teaching as a career as well as a mission. He should know his aim as well as the way to achieve the aim. Some suggestions are offered here for those who are to begin teaching.

### *Know the school routine*

When the teacher first starts teaching, one of the initial tasks is to familiarise himself with the normal school routine. For example, find out how attendance is checked, what the procedure is for handling tardy students, what the procedure is for sending a student to see the principal, what to do when a pupil is sick or hurt, how homework is assigned and checked, what is involved in taking the class to the library or other school faculty, how to secure and use audio-visual equipment, when and how all school announcements are made. The teacher can minimise confusion and remove uncertainty if he knows how to take care of these matters and is ready for them when they come up.

### *Be familiar with the standard of the class*

The teacher should collect as much information as possible about the class he is going to teach—the ability level of the class, the classification and its basis, taught by how many teachers, the part it plays in the general school life, the general health and attendance record of the class, educational attainments, any peculiar problem, etc.

### *Be familiar with curriculum*

The teacher must plan his programme of work well. The planning starts with the entire school life of the students. He should be reasonably familiar with the curriculum content of his field at each level. The teacher, if he knows what his pupils have been exposed to in previous grade, can balance the curriculum and avoid repetition. He should make the child see the relevance of what he is to learn.

### *Organise routine efficiently*

The students as well as the teacher benefit if the routine activities like calling the roll, making daily assignments, collecting papers from each student, are regularly and efficiently organised.

### *Over-plan at first*

Fresh teachers invariably benefit not only by pre-planning but also by over-planning. That will give them a certain degree of confidence. Of course, the plans must be flexible ; however, specific detailed plans are essential at first. It is wise to lay out more work than you think you possibly can accomplish in a single class period in order to avoid the experience which happens only once—the lesson planned for the day is up and it is still fifteen minutes to go, the teacher stands before forty expectant faces with his heart in his throat, perspiring profusely, grasping wildly for something to do. It is further advisable to keep an emergency activity plan handy for use in such cases or when the normal plan goes awry.

### *Conduct the lesson well*

While teaching, the steps—motivation, presentation, participation, application, evaluation should be properly taken care of. Provide situations in the classroom for optimum learning.

### *Learn names quickly*

Each child has a fascination for his own name. It simply is a clear demonstration of your interest in your students if you are able to call each of them by name. Also, it is considerably more effective to say "Now, Ravi, please pass your paper in" than "Will the boy with a grey shirt pass his paper in ?" The use of a seating chart will help the teacher in the essential job of learning the names of the pupils quickly.

### *Keep balance*

Self-control is just as essential for the teacher as it is for the students. The new teacher should strive to display the self-control of an adult and a professional teacher as an example to his class. A teacher who cannot control his emotions is less able to deal constructively, objectively, and intelligently with untoward situations. Impulsive expression is immature, unprofessional and ultimately ineffective. So, the teacher must keep mental balance.

### *Project your personality*

The successful teacher is one who is able to come across the pupil as a live human being—who has good days and bad days, good points as well as faults. If he is a warm, friendly accepting person, who is sincerely interested in students as individuals, they are more likely to accept and try to work with the teacher instead of against him.

## **Classroom problems for beginners**

A fresh teacher experiences many difficulties. Mohan is sleeping at the back of the room. Ravi snaps back at the teacher. Raju and Kiran sit watching him like snakes waiting for the first sign of weakness. Sunil starts yelling or singing or jumping over chairs—they do not want to learn. They take pleasure in testing the 'new' teacher. They want to test his boundaries. All beginners, thus, have to be concerned about their ability to establish and maintain discipline in the class to facilitate learning. Some suggestions are listed below :

1. Try to relate the assignments more closely to the personal goals of the pupils.
2. When immediate concern is to prevent the incident from interfering with the work of the class, a quiet discussion at the back of the room, at the teacher's desk, or out in some other pleasant place would be desirable.
3. If the class-work is likely to be seriously disturbed, the teacher may need to remove the irritating element temporarily so that the group may continue the work. The teacher may utilize other sources to deal constructively with the individual, but he must not report to the principal.
4. If the teacher has retained a wholesome relationship with the offender, a personal interview might provide the most valuable setting in which to discover causes. This might be arranged at the convenient time and it should be set up so that it is not perceived by the student as punishment but as an opportunity to discuss the episode with the teacher involved.
5. The lesson may be so interesting to some students that they would rather participate in the learning activity than do otherwise. If the class procedure is tightly organised, there may be little opportunity for students to engage in activities which are unrelated to classwork. As the teacher's planning takes into consideration the length of attention span and provides for variety in teaching procedures, the teaching-learning process will enhance class-room control. Pupils learn more readily and display more co-operative behaviour in favourable atmosphere.
6. The teacher should not insist on an unreasonable degree of physical inactivity.

## Summary

1. Teaching is not a mechanical process. It is an intricate, exacting, challenging job. The modern teaching-learning process emphasises the learner, guides the learner and

promotes learner development. Teaching, if highly developed, is an art and the truly fine teacher is an artist. The art of teaching calls for a high degree of flexibility, adaptability, and nimbleness of mind that goes far beyond the mechanical application of step by step procedures. There are few really final answers in education.

2. Learning is the pivotal problem in education. The learner must be actively involved in the process of learning. Learning is growth, adjustment, and is purposeful. It cannot be enforced. There is a lot of difference between adult and child learning.

## Questions and Problems

1. What do you mean by teaching ? Give its nature. What are its main characteristics ?
2. What are the general principles of teaching ? State the principle of good teaching.
3. "The teaching-learning process is a human affair between unique teacher and unique learner." Explain.
4. "One of the striking differences between a good teacher and a poor teacher appears in the capacity of the former to draw from a rich experience varieties of settings and in the failure of the latter to do more than repeat the topic in the same setting. The latter procedure killeth, the former maketh alive." Discuss.
5. "In the educational system, the pupil is more fundamental to it than the teacher. Indeed some of them may learn a subject despite their teacher." In the light of this remark, discuss the role of the teacher.
6. "Talk, chalk and walk is a good maxim for class teaching." Critically examine the statement.
7. "Teacher is universally bound to teach not by command but by search. To try to discover what the student is just now ready to learn, and to teach him just that, is the art of teaching." Comment.
8. "School experiences do not always meet children's psychological needs." What steps will you take to meet the needs of children ?
9. "The adequate stimulation and wise guidance of pupils' activity in its appropriate forms constitutes the goal of the teaching techniques." Amplify.
10. What is learning ? What are the major characteristics of learning ?

11. What are the laws of learning ? Explain with examples how you will make use of them in your teaching.
12. "Children want to learn, to know and to 'be able'. They do not have to be 'tested' or techniqued into growing." Comment.
13. "Learning takes place only in activity. For learning to be actual, the learner has to participate." Illustrate and explain the statement.
14. Discuss the importance of the factor "readiness to learn" in learning.
15. What is the importance of a maxim of teaching ? Explain the educational and psychological basis of any two maxims of teaching.
16. "Diagnose before you dose." Comment upon this maxim for corrective procedure.
17. The fundamental human motives are 'to create, to make, to discover, to express and to grow'. Critically examine this statement and show its application to educative process.

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# 4

# MOTIVATION AND LEARNING

*Importance of motivation—What is motivation?—Intrinsic versus extrinsic motivation—Motivational procedures—Motivating backward pupils—Causing and maintaining motivation—Summary—Questions and problems—Bibliography.*

## Importance of motivation

It is not uncommon for the teacher to find that while he is interested to teach, the pupils are not interested to learn what he wants them to learn at a particular moment. He discovers that while he was writing on the blackboard, Pawan was making figures in his notebook ; Ravinder was cutting jokes with Paramjit ; Rajan was solving the sums of arithmetic to outwit his arithmetic teacher. He scolds them, they are quiet for a moment. But after a few minutes they are again busy with their activities. He is baffled—does not know how to make the pupils do what he considers desirable for them at the moment.

These situations show that the pupils mentioned above are without doubt *motivated* but not motivated to the situation to which the teacher wants them. The pupils are full of energy—their energy runs off in all directions. Pupils have certain needs and a reservoir of energy that are in a sense always motivated. They do not lack a will to work. The students are coiled springs ready to make something whirl. This may sound like an exaggeration to the teacher who prods and tugs at an indifferent class. Yet these indifferent pupils are "making nice figures, are cutting intelligent jokes, are solving difficult sums."

Then what is the problems before the teacher ? What is this problem of methodology the teacher is faced with ? It is the problem of motivation. All problems of educational methodology are primarily problems of motivation and learning, perception and thought. But it needs to be remembered that the problem of motivation is not to awaken an inert audience, but to direct the energy of an alert group into constructive channels and keep it there. It means inculcating and simulating interest in a particular topic at the moment. It, in fact, involves the understanding and use of natural urges of the child and also assisting him in acquiring new desirable motives.

If learning is to result, the individual must be actively interested in the problem, or in reaching the goal. *The motivation of pupils is one of the most important factors in teaching. Without it, there can be no learning. With it, you cannot prevent pupils from learning.*

It has been seen that learning is sometimes automatic and without any conscious efforts on the part of the learner. But such learning is very slow and ineffective. If the learning is to proceed at normal rate, the learner has to concentrate his energy upon it. He can do this to the extent he is interested in the talk or the topic of learning. It is a common classroom experience that different children are interested in different subjects and activities, further, they are generally good in the subject of their interest. The creation of interest in any subject is a difficult process. It depends on how far students find meaning in the subject from the point of view of utility. It also depends on how the teacher can stimulate learning in the pupils. How much and how well a child responds to teaching and learning, depends on how effectively he has been motivated to do so. A good teacher always tries to understand the motives of the child before he begins to teach him. That means he creates a learning situation and thus whets the appetite for learning in the child. Thus "motivation" is a process by which the pupils' will to work is maintained, particularly in tedious occupations or in the face of difficulties, until success is achieved. It is for this reason, that effective motivation is the first and foremost single principle of learning.

It is well known that one can take a horse to a pool of water but cannot make him drink. Unless the horse feels thirsty, it will not drink. Similarly, even if the teacher exposes the pupils to a good learning environment, it is not necessary that pupils will learn. It naturally points to the principle that the teacher must appeal to the motives of individual pupils, if he wants to achieve quick results. Creating a will to learn and maintaining this is quite a difficult process. "We live in a push-button age, when comfort has a terrific appeal, but there is no easy road to learning. There is no magic osmosis ; effective learning is still the old fashioned formula of 9/10 perspiration and 1/10 inspiration." Making the pupils perspire and perspire joyfully is one of the big problems before educators. Then so much to learn, so short the time ! The teacher can increase both the speed and the quality of the child's learning by appealing to the motives the child brings with him into the classroom. For instance, the teacher who states a provocative question and promises to answer it, is more effective than one that plods stodgily. Similarly, the child in kindergarten is given an incentive to pick up scattered beads and crayons by announcing that he will read a story if the task is done in time.

This shows that the teacher has to use various natural and artificial motivational procedures, positive as well as negative, for inducing the pupils to learn. As far as possible positive procedures should be tried as they contribute more to the mental and emotional well-being of child than negative procedure do.

### What is motivation ?

Anything which moves an inividual to action may be described as motivation. Children are moved to action, in other words, motivated, when they are in a state of tension or disequilibrium. When tension is removed and the equilibrium restored, a state of quiescence ensues. Tensions arise when an individual sees or imagines an object or state which he does not possess but he desires. In other words, he 'feels' the need to know what he does not know. The teacher has to provide for and inculcate such motives as would channelise the pupil activities in desirable lines. The teacher has to manipulate the atmosphere in such a way that the child feels that if he does not pay attention, he will be losing something which has got value for him.

If the goals are attractive to the learners, a motive with its accompanying tensions is aroused and the activities leading to the goal are initiated, energized and directed. The pupil is motivated.

Teaching is like lighting a fire—the spark between the child and the learning process is to be provided by the teacher. Once the spark is provided, the fire will definitely follow. Difficulties will be overcome, boredom will evaporate, ready-to-be-through-with-the-problem attitude will develop. In short, learning process is facilitated.

### Intrinsic versus extrinsic motivation

Instrinsic motivation is that which is aroused in the learning processes. It may be aroused because there is interest in the very activity itself. Somehow it continues what the child has been thinking about, what he has been participating in and is stronger if he is personally involved in the activity. It fulfils his own desires. Under such conditions, motives arise out of interests which are related to children's attempts to solve their own problems, to live their own lives.

It is admitted that intrinsic interest is by far the best type, because it is accompanied by a pleasantness which flows out to other related activities and that is desirable. Abiding interest can be had only in making the material of the school significant for the child. This can be done by carefully studying the interests of children and providing in the school-room some opportunity for their expression.

Intrinsic motivation is the sort of motivation which Dewey referred to when he spoke of the wholehearted identification of oneself with a goal or activity. Perhaps the satisfaction which comes in the activity itself is the main point. Much learning is poorly done because there is little interest in either the activity or the goal. Children see no significance to themselves in much of the materials to be learned. In such cases extrinsic motivators lose their value. Reproof soon loses its force, and even rivalry becomes dull. Praise undoubtedlly, after a while, fails on one who is not interested but such an interest as a child gets reading *Gulliver's Travels* is apt to abide. It is this abiding interest in their subject of instruction which we should wish to develop in our children. Also we should create an atmosphere pleasant to the child and conducive to learning.

### Motivational procedures

No rigid motivational procedures can be prescribed for all kinds of situations and problems that arise in education. Just as children differ markedly in their emotional and intellectual disposition, similarly they differ in their responses to other types of motivational techniques and processes. Then apart from the fact of individual differences, there are a number of age and socio-cultural variations. For example, the problem of the kindergarten and primary teacher would seem to be not so much as that of inducting motivation as that of channellising, and most important of all, not destroying the interest that the child brings with him.

With this limitation in mind, certain educational measures and techniques are suggested which may prove useful in creating motivation and conditions for good learning. These may be used with discrimination. These techniques may be listed as :

(i) Motivation and maturation
(ii) Knowledge of goals and procedures
(iii) Relationship with life
(iv) Teacher-pupil relationship
(v) Active participation
(vi) Success and failure
(vii) Rewards
(viii) Punishment
(ix) Praise and reproof
(x) Knowledge of progress
(xi) Marks
(xii) Co-curricular activities
(xiii) Rivalry between groups
(xiv) Rivalry with one's own past record

We shall proceed to discuss these one by one

1. *Motivation and maturation* : Learning is highly motivated when it is ego involved, and the learner finds that his desires are fulfilled. A properly planned curriculum and teaching in accordance with age and level of mental development of children is essential to make it more meaningful to them. Pupils get interested and, therefore, involved in such learning. They begin to see some purpose and goal in their work and strive to achive them. Properly understood goals increase motivation. For instance, the goal of writing good articles for the school paper makes spelling, sentence structure and paragraph unity become meaningful experiences. What is required in this connection is properly sensing the problems of the children and comprehending them. Mere grouping towards a dimly understood goal is not enough. It should be clearly defined by the teacher and a goal perceived by the pupil, often has high educative value. And then it is not difficult to know interests of children. Indications of such interest may be observed in pupils' questions, their curiosity, the games they play, the movies they see and the books and comics they read.

2. *Knowledge of goals and procedures* : In most of the cases, knowledge of goals and procedures can prove reinforcing and motivating. When the goals are demonstrated to be both desirable and attainable, the teacher can get the co-operation of the pupils in the best possible manner. If the teacher can suggest desirable educational goals that appeal to the child's motives, he will have harnessed one of the most powerful learning forces.

3. *Relationship with life* : Supposing a child attempts to solve a problem in arithmetic, the more it resembles his own life's experience the more favourably will he be set towards its solution. For example, such a problem as "Find the cost of 10 Kg. of flour, 1 Kg. of potatoes, 2 Kg. of carrots" would certainly arouse much interest if the pupils were playing a game of house. It is for this reason we emphasize the well-known maxims in teaching, from known to unknown and from familiar to unfamiliar.

4. *Teacher-pupil relationship* : A good, intimate, happy emotional relationship between pupils and teachers is also a very effective motivating device. A good individual contact, of course, depends upon the teacher pupil ratio in the class. But it will depend more upon the individual teacher's attitude towards work and pupils, how and what type of atmosphere he creates and maintains in his class, the degree of acceptance he has for his pupils and vice versa. Better acceptance leads to better understanding, better understanding leads to better motivation and this in turn to better learning. In a supporting environment the pupil is more likely to try and is, therefore, more likely to learn. As the likelihood of disapproval lessens,

inhibitions disappear, inventiveness and self-expression increase. This view is supported by several findings. Warm, considerate teachers get an unusual amount of original poetry and art from children (Cogan, 1960), generate a great interest in school work (Reed, 1961) and may produce more proficiency in vocabulary and arithmetic (Christonsen, 1960).

5. *Active participation* : Pupils are motivated when they are active partners in an enterprise. The feeling of active association makes them interested in the activity. Pupils' ego-involvement ensures enthusiasm, they attend to their activities more vigorously. Experiments have shown that pupil's participation promotes school learning. This is true of physical as well as intellectual activities. School programmes should activise the pupils through two-way traffic.

To develop desire for a goal and enjoyment of an activity, there is no better tactic than to give the pupil a feeling of continuously rising accomplishment, tasks that he can master and gains recognised.

6. *Success and failure* : Success is a very important motivating factor. It is essential that the need of the child for mastery must be satisfied with a reasonable amount of success. Repeated failure undeniably produces disorganising emotional experiences. Every child has some potentiality—one child can draw well, another can construct acceptable object out of easily obtainable materials. These must be discovered and adapted to the levels of ability which the children possess. Easyiness evokes the child's contempt ; difficulty, his surrender. The difficulty must be sufficient to challenge, but not too great to baffle completely. All children must in one way or another have an opportunity to succeed in some activity of which their peers approve. Even in this regard individual differences must be taken into consideration. Whatever the cause, the degree of success achieved in the goals which the pupils set for themselves is directly related to the need for mastery. One child is happy if he gets a grade D, another very unhappy at receiving B when he is striving for A. Motivation will be the highest when both the past satisfaction and anticipated future satisfaction are encouraging. Let us see the child is stimulated to set higher goals and achieves a fair degree of success.

A word of caution here ! No harm is done if the pupil is challenged to try for some goals that he has only a small chance of reaching. Reaching an unlikely goal once in five trials can strengthen willingness to try if the one success is satisfying and if the learner understands that his failures are not a discredit. The reformer, the inventor, the politician, the athlete, the artist, the teacher—all of them must try many times to be rewarded with one triumph. Experience in school can teach one to accept "failures" that are the inevitable price of daring.

7. *Rewards* : Rewards make the correct response more likely to be retained. They are important for learners who have a strong desire to win self-respect or approval from superiors. As they are symbolic of approval from authority, they appeal to the conformer; others enjoy the game of testing their powers against their peers. Thus rewards by giving status often impel pupils to greater activity.

Many psychologists and educators frown on rewards because they frequently become ends in themselves. It is argued that, in many cases, receipt of the reward becomes a signal for termination of effort. Witness the student who thoroughly enjoys a course but who sells his text books as soon as he has done his duty by the final examination. Hobbies that have no definite reward are often pursued far more persistently.

Moreover, beyond a certain point, increases in reward seem to have no effect on motivation.

Again, if the task seems purposeless, and a person's only satisfaction comes from the added incentive, the learned behaviour disappears rapidly when the training ends and the reward stops. A detrimental effect of heightened incentive is that the person narrows the attention to what is strictly relevant to getting the reward. He therefore, retains far less irrelevant information from the experience.

Some general principles in the use of rewards in training situations are listed below :

(i) It is desirable to ensure frequent and regular experiences of success or their reinforcement, in all phases of learning, particularly in the earlier and more difficult phases. The teacher must see that the learner is not given the tasks which are beyond his capabilities and which make unreasonable demands on him. The teacher must give frequent opportunities to the child to succeed in his attempts. Every teacher is familiar with the student whose repeated failures have led to lowering his efficiency much below its normal level. No child will strive to attain an impossible goal for very long. A related implication is that, as far as possible, the student should be offered reasonable sub-goals, with an appropriate emphasis on their attainment, especially where relatively long and difficult periods are required. Let the tasks be challenging but not discouraging.

(ii) Rewards should be intrinsic in nature. The reward of saying "you can do it" is more effective than the symbolic status of a good grade or a gold star.

8. *Punishment* : Punishment, from humiliation to caning, is not infrequently used by teachers to impose their will and authority on the pupils. But it is generally recognised that the deliberate use of punishment as a motivator may have highly undesirable effects. The

teacher wants the student to work. He intimidates the student by actually punishing him or by holding out the threat of punishment. The effect may be very undesirable in either case. It turns pupils into mechanical toys cramming certain facts without appreciable mental development. Even the fear of failure in an examination is a negative motivation as it might lead to a variety of negative and anti-social activities such as cramming, copying, stealing, quarrelling and so on.

One of the difficulties about punishment is that it is most often delayed and the interval between the response and the punishment may be so long that its effectiveness as a deterrent is very much reduced. Again, a major effect of punishment is as a suppressor of responses ; and in order to keep responses suppressed, it becomes necessary to continue the punishment. The deterrent theory of punishment works only if the threat of punishment is supplemented by the provision of positive alternatives.

*9. Praise or reproof* : Praise, that is deserved, is an incentive tc effort at all stages of education. The effectiveness of praise depends on the person who gives it. If praise emanates from a source which is regarded highly by the pupil, it exerts a stimulating effect. To call up a group before the class and publicly praise them is more motivating than merely to write "good" or "poor" on their note-books. Individual differences must be taken into account. Some will be commended for relatively minor accomplishments because of their limited ability. Others will have to be praised only for doing a difficult task of which they are capable. So, a judicious use of praise is required. Here it must be made clear that praise is like a drug, if it is administered constantly over a period of time, it loses much of its potency.

Reproof has been experimentally studied, The data indicates that an experienced teacher can safely use reproof if (i) he knows the pupil well ; (ii) he knows, the pupil likes him ; (iii) the pupil deserves the reprimand ; (iv) he makes it clear that he is rejecting the pupil's behaviour rather than the pupil himself ; (v) reproof is tempered with humour.

Reproof should be used sparingly.and judiciously, as it is potentially dangerous. So is a surgeon's scalpel. Neither should be used by unskilled persons ; neither should be used without careful diagnosis : neither should be used if less dangerous methods can accomplish the desired results. Sometimes, however, there is nothing that will take the place of surgery. Similarly, reproof, if skilfully used, is sometimes the best way to drive home a point.

Researches have shown that reproof is less effective with slow learning pupils—perhaps because it is excessively used with them and more effective with brighter students. Further, there are great individual variations in response to reproof. Extroverts react to sarcasm constructively whereas praise proves more effective with introverts. Also girls are more affected by praise than boys—with boys reproof is a greater incentive. Praise has the greatest effect on children of inferior intelligence, next on those of average ability and least on those of superior intelligence.

Researches have also shown that the praised and reproved groups improve in accuracy as compared to ignored groups.

*10. Knowledge of progress* : Prompt knowledge of results has a powerful motivating effect. The child learns more rapidly and more thoroughly because he is forced to concentrate on material before him and he also gets immediate feedback on his progress. But when, for example, marks are kept secret until the final blow falls, the pupil has no idea whether or not his work is satisfactory. Not knowing how to judge his own work, he may feel that he is doing badly when he is not, or he may be too confident.

Knowledge of progress is particularly necessary in training situations where original interest is low or where strong extraneous competition is not present for attention and effort.

There are many ways in which the teacher may give pupils information about their progress. Grades, praise and reproof, teacher-pupil conferences, charts of progress can prove useful in this respect. Sound internal assessment at regular intervals can motivate school learning.

*11. Marks* : Marks can also serve as a motivating device; they serve as definite goals though not all pupils will work for high marks. The student has a level of expectation when he enters the course, and he will work seriously to reach that level. The teacher who lists extra work that can be done to earn an A will get that work from students who regard themselves as potential A students. Those content to plod along at an average level will ignore the higher level.

The motivating effect of marks is limited by the feeling in many pupils that high grades are out of their reach. This is especially the case when the same standard is set for every pupil regardless of his initial ability. If a mark compares the pupil with others of the same ability, every pupil has a chance for a high mark. But when the mark is first and foremost a record of level attained as it must be to serve its administrative purposes, the pupil who starts at a superior level is fairly certain to have a high final mark whether or not he pushes himself. Marks are meaningful as motivational technique only if they measure progress during the course, which is not the same as level of final performance. Moreover, if the pupil is continually finding his work in terms of standards that he understands, he is fully aware of the desirable improvement. These frequent judgements starting early in the course, arouse little tension and encourage hopeful attitude.

*12. Co-curricular activities* : Co-curricular activities such as sports, clubs and societies play an important role in motivating pupils to work. The activities develop pupil interests and stimulate their latent activities. These in turn help in learning school subjects. Pupils who are interested in history, for example, may be brought together in a history club. Such pupils may plan tours to nearby places of historical interest and study material on the spot. Such activities would develop their interest for history, leading to better and lasting learning of the subject. On the same lines, science clubs can be established. These clubs can motivate pupils for better learning of science.

*13. Rivalry between groups* : The Jesuits, whose schools were models for their times and whose story of mild discipliner has come down to us, were famous for their use of the spirit of rivalry. They divided the class into two groups and skilfully played one against the other. Properly controlled group rivalry is a legitimate means of stimulating interest when other means have failed. For teaching spelling, matches may be conducted; the lagging groups can be taught to work harder. The applause of the winning side, talk outside the class-room and enthusiasm in taking the tests give ample testimony to the effectiveness of the incentive.

Competition between groups can be aroused by dividing classes into sections and by pitting them against one another.

Rivalry between groups, properly controlled and carefully introduced, furnishes a legitimate drive towards more efficient learning. It works best with the young and the inferior. Its direct effects may persist for at least a week.

Rivalry illustrates the motivating of a drive using artificial goals. The interest aroused is extrinsic because it is outside the activity itself.

There are certain limitations of this motivational device. In some pupils, competition arouses conflict ; the threat of losing or the tension induced by working against others prevents whole hearted participation. Then can everyone be confident of reaching the goal ? Competition violates this principle also. When most participants are likely to lose, many pupils protect themselves by setting a low level of aspiration i.e. by not trying. In a spelling match, some pupils are pleased if only they are not the first to make an error ; winning is far from their minds.

A competition programme tends to help only the better performers. The topmost spellers stay in the spelling competition—the weaker spellers are eliminated early and become an audience while others continue to practise and learn.

Again, competition usually makes poor provisions for examining one's own performance. When prizes are awarded, the winner does not learn why he did well, and the losers have no idea how to do better the next time.

Moreover, prizes are attached to products, not to processes. A pupil who wins a gold star for doing his arithmetic rapidly may be using processess that will prove a disadvantage in later work.

Competition is not a good teaching situation—but it may cause the learner to take more seriously the non-competitive teaching sessions that prepare him for the competition.

Competition has harmful effects also. Focussing the spotlight on the very best, it damages the self-respect of the mediocre. The boy, whose craftsmanship is limited, needs to practise and to believe in his capability just as much as the boy who can win prizes. The student who is hopelessly out-classed in public speaking competitions will avoid speech activities. The school should be developing his skill and confidence as a speaker. Class discussions, panels and non-competitive talks would provide practice without threat.

Again, competition is not the only way to bring each person to his full potentiality. By emphasizing the false standard that one shows, taking pride when he excels, it discourages the pupil from developing his lesser talents.

Notwithstanding these limitations, competition is a very good motivational device. What is important in using this device is certain caution. For instance, competition should not be made so important that failure to win is emotionally disruptive. Let the pupils face many activities in which they can have a chance to excel, so that no single defeat takes on a special importance. Let the pupil learn to be a good loser, to push to his limit when in competition, and to win gracefully. It should be possible to teach these behaviours without inculcating such harmful attitudes as "why work when there is no prize ?" A person who is competitive in all his activities is as maladjusted as a person who is never aroused.

To conclude, we cannot say that competition is either good or bad in the school. Used in proper proportion, it can make work more attractive and can lead to conspicuous success that instils pride. The best policy is set up worthwhile programmes in which pupils attain satisfaction through meeting high standards. Intelligently regulated competition added to such a programme will be a beneficial stimulant.

14. *Rivalry with one's own past record* : It is undoubtedly one of the finest type of rivalry, if the child is tested monthly in reading, spelling, composition, handwriting and arithmetic and from these test scores graphs are drawn up which show the progress of each individual pupil. The child himself can recognise immediately whether or not he is above or below his previous record. Indeed, the child may be taugnt to construct his own graph. He thus gets accustomed to a sort of objective evaluation of his own resources.. For instance, an accurate determination of the pupil's position in his reading enables him to know exactly where he stands and what improvement he is making from month to month. It has the advantage of giving him objective facts, not subjective ones. Moreover, by drawing the grade standards on the graph, it is easily determinable just where the pupil belongs. Improvement now becomes a co-operative undertaking between the pupil and the teacher in order to get the pupil up to his standard.

## Motivating backward pupils

The factor of motivation constitutes one of the most difficult problems confronting teachers of backward and retarded pupils. There are certain additional points which need to be borne in mind for the purpose. They are:

*The backward and retarded pupils are apt to be more interested and more able to work with concrete, perceptual experiences.* Prof. Wallin who had spent his professional life studying the characteristics of the backward says, "Children who are seriously retarded are 'thing minded', 'eye-minded' and 'ear minded' rather than 'word-minded' or 'thought-minded''. by which he means that such children are more attentive to the things they can actually perceive directly with their senses. As a result, words are hard for them. What they see, hear, taste, smell, touch are realistic. Such children are successful with manual arts especially, as they offer opportunities for manipulation. Of course, words, symbols, ideas must be learned, but there must be a gradual transition from objects or perceptual experiences to words and ideas. It is a slow process and requires a wealth of concrete experiences if there is to be real education. Words must be names of first hand experiences if they are to be more than mere sounds. Motivation under such conditions arises of an opportunistic approach to the children's life situations to discover activity programmes which are immediate and meaningful. Such type of activity will be highly motivated. The children understand and embrace the goal; they work with materials they can manage ; they learn things in relation : they repeat many times what they have already learnt ; and they work as a group in forwarding the projects.

**Causing and maintaining motivation**

For initiating and maintaining motivation, a few techniques are suggested below :

1. *Whetting the appetite* : Some of the recognised external incentives may be used by the teacher to whet the students' appetite for learning. Two such incentives are social approval and prizes.

2. *Emphasizing instrumental behaviour* : One of the major objectives of education should be to develop intrinsic motivating quality in certain kinds of instrumental behaviour, such as reading, writing, calculating arithmetically and critical and creative thinking. All these behaviours are normally instrumental in the achievement of many goals and are ordinarily taught as such. Also, if attention is paid to an appropriate reinforcement of the activities themselves it should be possible to facilitate the process of investing them with intrinsic motivational properties. Whereas by logical drive conditions are apparently intensified by blocking, the learning of mere complex motives probably requires more rewards and less frustrations, especially in the early stages of development.

The teacher should not rely too much on such extrinsic motivators as prizes, gold stars and the like. Two precautions should be specially borne in mind :

(*a*) Extrinsic incentives should be distributed as widely as possible over the entire class. If a small number of such incentives are offered on a strictly competitive basis, only a relatively small proportion of the class will be in a position to compete effectively. Then the achievements of the minority are not likely to be of motivational values to the remaining students.

(*b*) The effectiveness of extrinsic motivation is a function of the degree of learning attained. It is clearly more necessary in the early stages of learning, the stage before the pupil has managed to obtain much success directly through his own efforts. The skilful teacher should see that the external motivators are de-emphasized as soon as possible in order that full advantage can be taken of the intrinsically motivating effects of successful performance.

This requires individual attention to be paid to the pupils in the class.

3. *Utilizing suspense discovery* : An effective teacher or textbook should be able to hold the student's interest by maintaining some degree of suspense to the outcome of problems and by allowing the student to work through discoveries for himself.

4. *Avoid initial discouragements* : One of the problems in the initiation of performance is that of overcoming inertia. A child can sometimes be induced to eat when presented a small portion of food,

though he may have refused to start on a larger portion of food before. Similarly, a student can more often be stimulated to work by a partial assignment than by the assignment of the whole task all at once.

Judicious use of external incentives can also be helpful in preventing initial discouragement.

5. *Prevention of extinction* : The teacher is confronted with a major educational problem in a progressive loss of interest on the part of students in academic learning activities. Extinction of such interest may be prevented by systematically introducing secondary motivators and by offering a variety of incentives and rewards.

## Summary

1. The purpose of motivation is to direct the energy of an alert group into constructive channels and keep it there. It means inclucating and stimulating interest in a particular topic at the moment. It involves the understanding and use of natural urges of the child and also assisting him in acquiring new desirable motives. The motivation of pupils is one of the most important factors in teaching, Without it there can be no learning. With it, you cannot prevent pupils from learning.
2. There are two types of motivation—intrinsic and extrinsic.
3. The teacher can use various techniques of motivation such as motivation and maturation, knowledge of goals and procedures, relationship with life—teacher pupil relationship—active participation—success and failure—rewards—punishment—praise and blame—knowledge of progress, marks, co-curricular activities—rivalry between groups—rivalry with one's past record.

## Questions and Problems

1. How will you as a teacher produce conditions whereby your objectives and the students' objectives coincide and cause the students to move in the direction of effective learning and understanding ?
2. What psychological factors or conditions produce in the learner a desire, a motive to learn ?
3. "Motivation is the greatest word in education." Explain the statement and describe the various methods you would adopt to motivate the pupils.
4. "When a teacher finds that his pupils are inattentive and waste a lot of time in the class, he is usually himself to

blame." Discuss this statement and suggest remedies for such a state.

5. What is the role of motivation in learning ? Critically examine the psychological and logical motivation.

6. Imagine that pupils have come to your subject with antipathy or phobia. How would you secure their interest and effort ?

7. What do you understand by intrinsic and extrinsic motivation ? Suggest ways of motivating the pupils in both.

8. "In the classroom, punishment disrupts the class : pupils become tense, antagonistic to the teacher and to the subject of study." Discuss the role of punishment as a motivator.
9. "Praise is a greater educational force than blame." Discuss.
10. "The modern child is said to be uninterested in learning and unwilling to learn." Illustrate from any subject that you have taught and explain how you will motivate him to learn willingly.
11. A teacher announces that any pupil who does not complete his homework will be punished by a reduction in his grade. Explain why, even after several experiences with this punishment, some pupils continue to turn in their work late ?

12. Since pupils who are not strongly motivated to achieve seem to do better when working toward an attractive reward, would you favour a system of rewards as a way of obtaining greater effort from non-strivers ?

13. What is the role of motivation in school learning ? Illustrate how you would create natural learning situations as against the artificial devices of motivation.

14. What is the importance of making your teaching purposeful to the child ? In what ways can this be done ? Illustrate by taking a particular age group.

15. Drawing, as far as possible, upon your own experience, discuss the motives which commonly stimulate pupils in school work and indicate their importance in teaching.

16. One of the distinguishing features of modern teaching from the traditional teaching is the teacher's deliberate attempt to motivate his pupils." What is motivation ? What is its necessity to the teacher ? How can it be secured ?

17. The fundamental human motives are "to create, to make, to discover, to express and to grow."

    Critically examine this statement and show its application to the educative process.

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# 5

# LEARNING EXPERIENCES

*The levels of learning experiences—Direct experiences—Vicarious experiences—Symbolic experiences—Conclusion—Summary—Questions and problems—Bibliography.*

## Three levels of learning experiences

Psychological researches have shown Fig. 1 that learning experiences occur on three levels :

(i) Direct Experiences.
(ii) Vicarious Experiences, and
(iii) Symbolic Experiences.

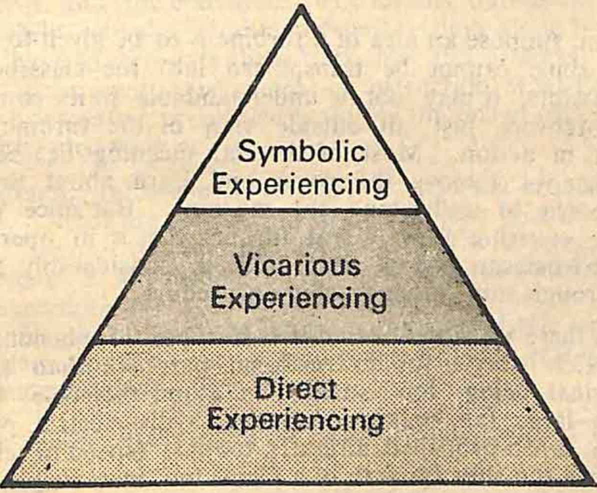

Fig 1 : Three Levels of Learning Experiences

## Direct experiences

It consists in having immediate sensory contact with the actual object. "It is the rich, full-bodied experience : it is the purposeful experience that is seen, handled, tasted, touched, felt and smelled. It is the unabridged version of life itself." Taking a trip to the actual site (say a factory, a fort, a temple), a laboratory experiment, preparation of a seed bed etc. provide the direct experiences. The local factory, retail shop, business office are *real*. Children can *see* them, *hear* them, *ask* questions about them and examine them minutely. Such experiences give first hand information and are thus the most educative experiences.

## Vicarious experiences

There is no doubt, about the fact that direct, first-hand, purposeful experience is the most educative type of experience, but sometimes it is neither possible nor desirable for the pupils to attain it. For instance, it is not desirable for a pupil to have first-hand experience with disease, accidents etc. Yet it is desirable for him to have a vicarious experience with them so that he may be able to recognise their characteristics, operation or action and effects. Similarly, it is not possible for an average pupil to see in person the Eskimos, marine life on the ocean floor and so many other things. To have direct contact with these and other inaccessible objects and phenomena would be too expensive in both time and money to arrange.

Again, suppose an idea of a turbine is to be given to the pupils. A giant turbine cannot be transported into the classroom. Even when accessible, it may not be understandable in its complex, real form. Moreover, just an outside view of the turbine gives no idea of it in action. Most of the real meaning lies beneath the cover. Once we remove the cover and learn about the interior, we can begin to understand the machine. But since we cannot remove the covering from a real turbine that is in operation—the direct experience can give us little—indeed, considerably less than is possible through some other teaching procedure.

Thus there are situations, objects or types of phenomena where a reproduction is better for instructional purposes than the original —the original being too small (an atom, molecule, blood corpuscle),too large (an ocean, continent, hydro-electric plant), too complex (a turbo-propelled aircraft), too fast (speed of electromagnetic waves), too slow (growth of a plant) too inaccessible (climbing Mount Everest) or too untimely, just beyond our reach in the past or future to be successfully experienced first hand. Moreover, sometimes the real life material is a process or abstraction that cannot be used in a direct way ; it has to be abridged or edited.

Whenever we face problems or situations mentioned above, we can contrive experiences, that is, take hold of reality and rearrange it, reshape it, edit it, emphasize certain things and abridge others. We can best recreate the actual situation through a *rearrangement* of the reality. We try to help the child enjoy an experience at second hand that has been a first hand experience for someone else. Vicarious or contrived experiences help us here. These experiences are enjoyed by the child through sympathetic participation in the experience of another.

In this category, we have models, specimens, films, television, radio etc. For instance, it is not possible for any of us to see the entire globe but we can see a small model of the same in our class room. Similarly, telescopic motion pictures can help us see what a trip to the moon might show us. Again, we cannot look directly at an atom, but a model presents it in an excellent reconstruction. Thus through a careful selection of pictures, records, drawings, films, photographs, models, exhibits, posters, television etc., we can bring the world to the class-room.

### Symbolic or abstract experiences

Symbolic or abstract experiences are offered through verbal symbols—oral or written. These experiences occur at the *conceptual level.* The success of this method of conveying information depends upon how common the information is, insight and background between the conveyor and the conveyee. The teacher translates the original item accurately into the symbol and passes these along to the pupils who then have to translate them back into the original image. As the image is the greatest instrument of instruction, what the child gets out of the information conveyed is simply the image which he himself forms with regard to it.

No doubt, verbalism is the quickest method of representing an experience. There are certain weaknesses in such type of experiences. Verbalism often leaves the children in a fool's paradise. In regard to certain items of knowledge, verbalism is confusing and uneconomic as many sentences are required to bring home a single concept or idea. Again, the translation and retranslation of the original item provides many opportunities for error, misemphasis, misinterpretation and misunderstandings.

Thus sensory experiences are much clearer than the verbal.

### Conclusion

Educationists are of the view that to facilitate the learning process, more emphasis should be put on direct, purposeful experiences and vicarious experiences and less on the symbolic, *at least in the initial stages of child's learning.* Though symbolic experiences and conceptual learning is our goal, yet these are almost impossible unless a good store of sensory experiences is established because learning is a process in which the concrete and the abstract interact. We move from the concrete to the abstract and back to the concrete. "It is a shuttling back and forth in which generalizations help us to understand new concrete experiences and the concrete experiences in turn help us to enlarge or refine our generalizations." As the child advances in age and his store of information increases, we can have more of symbolic or abstract experiences and less of direct and concrete experiences. Thus it is not a question of either direct experiences or symbolic experiences at a particular stage. It is a question of degree of emphasis. In the early stages more emphasis is required to be laid on direct and vicarious experiences and less on symbolic or abstract experiences. In the higher stages, more emphasis should be laid on symbolic or abstract experiences and less on concrete or vicarious experiences. Both are required for proper learning—direct and vicarious experiences supply a concrete basis for conceptual thinking ; they give rise to meaningful concepts, to words enriched by meaningful associations. They offer the best antidote for the disease of verbalism.

### Summary

1. Psychological researches have snown that learning experiences occur on three levels : direct experiencing, vicarious experiencing, symbolic experiencing.
2. Direct experiencing consists in having immediate sensory contact with the actual object—second hand experiences are styled as contrived or vicarious experiences. Experiences through verbal symbols—oral or written are called symbolic or abstract experiences.
4. In the higher stages, more emphasis should be laid on symbolic or abstract experiences and less on concrete or vicarious experiences. In the junior stages more emphasis should be laid on direct experiences and less on vicarious and symbolic experiences.

### Questions and Problems

1. Name the different types of learning experiences.
2. What is meant by direct learning ? To what extent can it be used in English, Biology and History ?
3. What is meant by indirect experiences in the teaching-learning process ? On what grounds would you justify organisa tion of indirect experiences in your teaching ?
4. Bring out the relationship between the direct and the indirect experiences in a teaching-learning process. How does the emphasis on each of these vary according to the age and development of the child ?

5. Write a short note on educative experiences.

6. Distinguish between 'direct and indirect' experience. How are they inter-related ? At what stage of child development is direct experience indispensable ?

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# 6

# CURRICULUM

*What is curriculum ?—Aims and objectives of curriculum—Principles for constructing curriculum—Organising the curriculum—High and Higher Secondary School Curriculum—Conclusion—Summary—Questions and problems—Bibliography.*

The school curriculum of a country, like its constitution, reflects the ethos of that country as also its chief concerns. Time and again it has been pointed out by our national leaders that the vestigial remains of a colonial feudal system of education, historically meant for the production of clerks, should be thrown out and the system revamped to respond the growing needs, aspirations and demands of a modern egalitarian society. In his system of Basic Education, Mahatma Gandhi gave an alternative approach which could help the development of a system in tune with the Indian society. The Report of the Education Commission (1964-66) incorporates the best that Basic Education has to offer, and lays emphasis on the "internal transformation"[1] of education so as to relate it to life, needs and aspirations of the nation. The values enshrinedpin our constitution point towards the development of a pluralist, unon society and a State which is secular, democratic and socialist in nature. The school curriculum should reflect these aims and values iniits structure, content, implied methodology—in fact, in its entire desgn.

Teaching-learning process does not operate in a vacuum. Certain planned experiences have to be provided in school so that optimum human development according to the needs of a particular country is possible. In this unit, we shall discuss about those 'planned experiences' styled as curriculum in recent educational terminology.

## What is curriculum ?

Curriculum is a Latin word which means the 'race course' or a 'run-way', which one taks to reach a goal. Thus, a curriculum is the instructional and educative programme through which the pupils achieve their goals, ideals and aspirations of life. Cunningham says, "Curriculum is a tool in the hands of the artist (the teacher) to mould his material (the pupil) in accordance with his ideals in his studio (the school)." The curriculum, however cannot be considered synonymous with courses of study, although they form an important part of curriculum.

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[1] The Curriculum for the Ten Year School, NCERT

The term curriculum in recent years has come to mean all the planned activities and experiences which are available to students under the direction of the school. It "includes the totality of experiences that a pupil receives through the manifold activities that go on in the school, in the classroom, library, laboratory, workshop, playground and in the numerous informal contacts between teachers and pupils. In this sense the whole life of the school becomes the curriculum which can touch the life of the students at all points and help in the evolution of a balanced personality."[1] In the words of Kearney and Cook, "It is a complex of more or less planned and controlled conditions under which students learn to behave and do behave in their various ways. In it, new behaviour may be acquired, present behaviour may be modified, maintained or eliminated ; and desirable behaviour may become both persistent and viable." This curriculum embraces the academic activities, the organised courses, as well as the extra class activities of the school, which include school clubs, inter-scholastic athletics, intra-mural athletics, and dramatic presentations. Not only this, "the school staff, other students, rules and decisions, school routine, discipline, reporting and marking, eligibility, instructional supplies and equipment, building and grounds, community, public opinion, the state of the nation and many others are the constituents of curriculum. As any of these change, the curriculum changes."

The curriculum deals with real life problems that have meaning for children and which are significant for them to solve. It is related to the physical, emotional and intellectual needs of children and leads to the full development of each child.

A good curriculum is the cooperative effort of children and teachers and helps to slove the problems the children face in the school and outside the school. The experiences are suited to the age of the learner, the emotional, physical and intellectual maturity of the learner and his previous experiences and learning. *A good curriculum, in fact, is the sum total of good learning experiences that the pupils have in order to achieve the goals of education which determine the direction of these experiences.*

**Aims and objectives of curriculum:**

Curriculum is intended ;

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[1] Secondary Education Commission Report, 1952-53, p. 85.

1. To draw out, cultivate, excite and inspire the full development of each student
2. To create an atmosphere in which students will learn to think ; where faculty and students will be critical enough to be objective and at the same time have faith enough to be constructive--where they will seek truth, solve problems, reason out and develop the power of thought.
3. To help students establish values through intimate acquaintance with the humanities, the arts, the natural sciences, the social sciences and religion.
4. To develop the character of students—integrity, honesty, judgment, cooperation, friendliness and goodwill.
5. To create a community of scholars where research, curiosity free enquiry, and discovery advance knowledge.
6. To prepare men and women for citizenship in a democratic society where freedom and liberty go hand in hand with law and justice and where responsibility, national and international, is a characteristic of the individual.
7. To meet the needs not only of more students but of students with a wide range of ability, aptitudes and interests.

### Principles for constructing curriculum

We give below some of the principles which should be borne in mind for constructing school curriculum:

*1. Curriculum should be child centred* : The child is an individual growing of his own activity, living in his own environment and preparing himself for adult's life, not imitating the adults, but by living as fully as possible in the environment of childhood. It is, therefore, essential that the curriculum should be based on the present needs and circumstances of the child. It should provide rich experiences to children for proper development.

*2. Curriculum should provide a fulness of experience for children*: The curriculm should not be interpreted in terms of certain subjects to be learnt but in terms of certain activities to be undertaken. As P. Nunn has observed, "The school must be thought of primarily not as place where certain knowledge is learnt, but as a place where the young are disciplined in certain forms of activity." Not only should the teaching of the various familiar academic subjects like the sciences, mathematics, work experience, languages, art, music and other aesthetic activities, health and physical education etc., include a variety of relevant practical activities like drama, excursion, regional study, laboratory work, drawing, original composition, collection for museum and herbarium etc., but a multitude of co-curricular activities like games, social service, scouting and guiding, N.C.C. etc., should form a regular feature of the normal working of the institution in order to bring into play all the essential faculties of children. The courses of study should contain a great amount of mental vitamins. A variety of vitamins are needed by our body which give us health and strength. Similarly, the subjects of study which induce mental health should collectively find a place in the school curriculum.

3. *Curriculum should make provision for flexibility within a framework of acceptable principles and values* : To make curriculum socially and personally relevant, it is necessary that it is flexible and dynamic and able to keep pace with the rapidly expanding frontiers of knowledge in science and technology and the changing socio-economic conditions of our society. "For a vast country like ours with its diversity of languages, social customs, manners, mores and uneven economic development the needs and demands of individuals and the society will have differential pull on the school curriculum, varying from one region to the other. For the sake of uniformity of standards and [of national identity, therefore it is necessary to develop a common curriculum within a broad frame work of acceptable principles and values." It is also necessary that the curriculum is always in the process of development and change to be a living and modern thing. Curriculum renewal should be a constant and continuous process.

4. *Curriculum should be related to the life needs and aspirations of the people* : It must enable us to know and understand thoroughly our own people amidst whom we are born and have to live our life. It should lead to a satisfactory knowledge of the country and its people, its needs and conditions, its geography and history, its culture and traditions, its heritage of the past and its problems of the future. Curriculum can become an instrument of social change if it is related to national integration, social justice, productivity, modernisation of the society and cultivation of normal and spiritual values.

5. *Curriculum should be able to develop a rational outlook* : In order to achieve this aim, curriculum should have science and mathematics as an integral part of school education up to X class. These subject areas can go a long way in giving our children modern knowledge, developing their curiosity, teaching them the scientific method of participation in a changing society and culture. These will develop a rational outlook among the pupils. Hence their study by all the children up to X class.

6. *Curriculum should lay emphasis on learning to live rather than on living to learn* : Curriculum should be useful to act as a source of strength and inspiration to an individual in solving life's

problems and meeting life's situations. Curriculum must aim at making him fit for life and the world and teach pupils the way to utilize the sources of happiness which nature supplies and to use all these facilities to the greatest advantage to himself and others. The pupil whose education has sharpened his wits, trained his powers of observing and thinking, given him a reliable and self reliant character and a healthy body, will succeed in whatever work, his natural bent, inclination and ability lead him to take up.

7. *Curriculum should make provision for socially useful productive work* : The pupils should be provided opportunities to learn from the use of hands. Socially useful productive work needs to be provided to enable the pupils to develop insight into the material phenomena and human relationships involved in any organised productive work, and develop the attitudes necessary for cooperative accomplishment of talks and discharging of social responsibility within a framework of equality as well as of the freedom of the human spirit.

8. *Curriculum should be able to promote social justice, democratic values and national integration* : It should be designed to develop tolerance, friendship, cooperation and peace between nations. A proper understanding and appreciation of the different sub-cultures of India and the common bonds that hold them together the different subjects is necessary to foster the spirit of scientific humanism.

9. *Curriculum should make adequate provision for the study of languages* : The language is one of the most powerful tools to develop a catholicity of outlook and an appreciation of the basic values of the composite culture of India. Languages need to be taught to the pupils before they leave the school.

10. *Curriculum should make provision for artistic experience and expression* : Interest in beauty and the ability to discern it and integrate it into one's personality, together with other components of artistic experience, should be woven into the entire texture of educational activity. Ample opportunity must be provided to each one to preserve and develop his originality and creative talents and make use of his gifts, aptitudes and personal form of expression.

11. *Curriculum should make provision for physical development* : There should be ample provision for strengthening the body and developing its skills and capacities, training the muscles and nerves, cultivating the senses and inculcating hygienic and proper dietary habits.

12. *Curriculum should make provision for character building and human values* : The school curriculum can be framed in a manner to centre round the objective of character building. Opportunities can be provided to pupils for enabling them to discover their potentialities,

Curriculum should help the children to express themselves and find self-fulfilment. It should cultivate the basic qualities of compassion, endurance, courage, decision making, resourcefulness, respect for others, the team spirit, truthfulness, faithfulness, loyalty to duty and the common good. Different curricular subjects and programmes of physical education, cocurricular activity and work experience and activities as social service, scouting and guiding, N.C.C. etc., are all helpful in the development of character.

*13. Curriculum should provide both for uniformity and variety* : It should help to develop the common as well as the uncommon. It should help children to compare and contrast, to get at the truth, to be skeptical of 'angled' reporting, to resist the wits of the hidden persuaders, to appreciate that racial differences can be explained by history and geography, to be critical of society and to arrive at reasoned judgement. The curriculum must help to reproduce the type but endeavour to go beyond the type.

*14. Curriculum should provide for continuity in the whole programme* : The continuity must be vertical as well as horizontal. Vertical continuity means using a sequence of subject matter from class one vertically up through class twelve. For horizontal continuity all of the subjects must be correlated. The curriculum is conceived as continuous from elementary school, through high school and on into college, each part growing out of past experience, and contributing to subsequent experiences. All these facts of the educational process must be so close that an operating unity is perceived. The curriculum can be divided so that from beginning to end it has a sense of social significance; *undivided mind* to develop worthwhile leisure time pursuits out of the subjects one has studied in classroom and to correlate their work and recreation and their cultural interests in a significant whole.

*15. Curriculum should be well integrated* : It is very necessary to enable children to correlate their experiences in study, recreation, life and in the realms of the spirit ; to cultivate in them single mindedness, as well as like mindedness and open mindedness; to present to them the knowledge of material, moral and spiritual things as one and not as three; to confirm their education with coherance and continuity from subject to subject, from work to plan, from class to class, from school, and from school to school work; to establish an intimate relationship between what is taught and done. The curriculum must be conceived as a unity or at least as a number of simple unities welding into intelligible wholes the existing mass of unrelated material. Curriculum should provide a whole experience. This is possible if the curriculum is well integrated.

**Organising the curriculum**

The curriculum has passed through a number of overlapping stages in rapid succession until it is now defined in terms much broader than any written outline.

Curriculum can be classified broadly as :

(*a*) Subject-matter curriculum including separate subjects, correlated subjects, and broad fields.

(*b*) Developmental activity curriculums.

(*a*) *Subject-matter curriculum* : The distinguishing characteristic of subject-matter curriculums is their preponderant emphasis on facts and skills, on subject matter set out to be learned.

The separate subject curriculum provides that subject be taught in separate periods of the day. The emphasis is on logical rather than psychological organisation and there is an assumption that all children will or should learn from contact from the same sources at the same rate.

The correlated curriculum is an attempt to overcome the crippling atomism of the separate subjects curriculum. The aim is to relate the various subjects (associationism) so that each can better reinforce and complement the other.

The broad fields curriculum is a modification of the correlated curriculum. Subjects are grouped into broad fields such as language ; arts (communication); natural science; social studies ; physical education, and physiology ; and the arts.

(*b*) *Developmental activity curriculum*: It attempts to fit the scope and sequence of each child's activities and experiences in school to his biological, intellectual and social growth. It attempts to meet these basic social and organic needs of the learners. This type of curriculum is learner-oriented as contrasted with the other types, which depend for their organisation on subject-matter.

Before we discuss the importance of activity curriculum, it needs to be pointed out that activity education is not the latest fad in the educational field—an experiment that has yet to justify itself. Learning by doing, by activity and experience is the first and the most natural form of learning. Its introduction or rather reintroduction into the schools is not an innovation, it is a revival of a method of learning that not only comes naturally to every child but is as old and respectable as man himself. Educators like Comenius, Rousseau, Montessori, Dewey and Gandhi—all emphasised the role of activities in the education of the child. Comenius wrote, "Whatever has to be learnt, must be learnt by doing." Rousseau said, "Instead of making the child stick to his books, keep him busy in the worship, where his hands will work to the profit of his mind." Pestalozzi declared that verbal system of teaching neither suits the faculties of the child nor the circumstances of life. All this led to the activity principle in education. This emphasis on activity principle laid the foundation of Activity Curriculum.

What is meant by activity curriculum ? In activity curriculum, subject matter is translated in terms of activities and all the requisite knowledge, skills and attitudes are imparted through the activities. In the words of Prof. Brubacher, "More learning is a matter of sense impression. The senses are supposed to be active in absorbing impressions of the world round about the learner. Education is something that is done to the child from without. He undergoes it. The mind is occupied with mirroring the universe of knowledge and value."

According to John Dewey, "Activity curriculum is a continuous stream of child's activities, unbroken by systematic subjects and springing from the interests and personally felt needs of the child."

The framers of the Wardha Scheme of Education state, "We have attempted to draft an activity curriculum which implies that our schools must be the places of work, experimentation and discovery, and not of passive absorption, imparted as second hand."

The Secondary Education Commission Report points out, "The basis of teaching must be the organisation of the subject-matter into units or projects which would create opportunities for self-activity on the part of the students. These should largely replace the formal lessons which lack proper motivation and therefore, fail to arouse real interest."

Activity curriculum attempts to fit the scope and sequence of each child's activities and experiences in school to his biological, intellectual and social growth. It attempts to meet these basic social and organic needs of the learners. In an activity curriculum we can take advantage of all the aspects of broad fields, correlated or subject-matter curriculums but it goes beyond them in its emphasis on the nature of the learner, on the range of interests and abilities in the classroom and on problem solving as the essence of the educative process.

### Nature of activities

When we talk of activity curriculum, we do not conceive of an activity in the narrow sense only. All activities of the hand, head and heart will be covered by the activity curriculum. All activities connected with craft work ; activities leading to the better knowledge of the physical and social environments ; activities linking the school with home and community; activities leading to citizenship and social living ; activities leading to healthy living, recreational and cultural activities can help us to teach arts and crafts, natural sciences and language, literature and fine arts. So it is absolutely essential that all types of activities, recreative, informative, productive, organisational, social, community and practical are assigned a proper place.

### Formulation of objectives

Ishwar Bhai Patel Committee has recommended the following objectives of education.

### Primary education

1. Acquisition of tools of formal learning, namely, literacy, numeracy and manual skills ;
2. Acquisition of knowledge through observation, study and experimentation in the areas of the social and natural sciences;
3. Development of physical strength and team spirit through sports and games ;
4. Acquisition of skills for planning and executing socially useful productive work with a view to making education work based;
5. Acquisition of skills of purposeful observation;
6. Acquisition of habits of cooperative behaviour within the family, school and community ;
7. Development of aesthetic perception and creativity through participation in artistic activities and observations of nature;
8. Development of social responsibility by inculcating habits (individually as well as collectively) of appreciation of the culture and life-styles of persons of other religions. regions and countries and readiness to serve the weaker and the deprived.
9. Development of the desire to participate in productive and other processes of community life and to serve the community.

### Secondary education

1. Acquisition of the skills and habits of self learning ;
2. Acquisition of a broad-based general education consisting of science, mathematics, social sciences, languages and socially useful productive labour ;

3. Acquisition of habits of helpful living and participation in games, sports and athletics for the maintenance of physical fitness ;
4. Developing aesthetic appreciation and creativity through participation in artistic activities ;
5. Exploring the world of work and understanding the realities of life in order to prepare for a confident entry into the world outside the school ;
6. Participation in and promotion of social activities in the school and the community in such a way as to develop democratic values and to work towards the achievement of equality through service to the weak and the deprived.

The Committee has recommended that a general broad-based education be provided up to the stage of compulsory education, so that children leaving school should have acquired a knowledge of our heritage and culture and are enabled to exercise their rights as citizens in a responsible manner. The Committee has recommended that for classes VIII/IX and X, there should be general broad-based education and provision must be made for developing special interests or talents in at least one area, outside the broad framework of general education. The Committee has strongly recommended that the content of courses of individual subjects of learning must be so designed as to keep the quantum of knowledge to the minimum essential for the understanding of the subject.

*Socially Useful Productive Work* : Patel Committee has recommended that socially useful productive work should be given a central place in curriculum at all stages of school education. It also recommended that it should be related to the content of the academic subjects as far as possible. This curricular area has been distinctly demarcated to emphasise the principle that education should be work centred, as the concept of Socially Useful Productive Work is to be developed in the light of the Gandhian Philosophy of Basic Education.

The aim of this curricular area, according to the Patel Committee, is to provide children with opportunities of participating in social and economic activities inside and outside the classroom, enabling them to understand scientific principles and processes involved in different types of work and in the setting in which they are found in the physical and social environment.

The Committee has advocated not merely education plus work but education in and through work. This education through work follows the natural instinct of man to translate thought into activity and vice-versa.

The Committee has suggested that premium on bookish knowledge in India can only be lessened by a complete change in the structure of the curriculum and allotment of time to the area of work. This can only be done if more emphasis is laid on activities and experience rather than formal instruction.

**Merits:**

(*i*) Prepares pupils to practice and perform manual work individually and collectively ;

(*ii*) Acquaints children with the work and services to the community and develops in them a sense of respect for manual workers ;

(*iii*) Develops a desire to be useful members of society and contribute their best to the common good ;

(*iv*) Indicates positive attitudes of team work and socially desirable values like self-reliance, dignity of labour, tolerance, cooperation, sympathy and helpfulness ;

(*v*) Help in understanding the principles involved in the various forms of work ; and

(*vi*) Lead children to participate increasingly in productive work as they go from one stage of education to another and, thereby enable them to earn while they learn.

The Committee feels if Socially Useful Productive Work is given a central and dominant place in the curriculum, the gap between work and education will be reduced, the school will not remain isolated from the community and the gulf that divides the affluent from the weaker and poorer sections of the community will be bridged. Such a scheme will provide equality of opportunity for working and learning to all children irrespective of caste, creed, sex and economic status.

Programme can be so planned and implemented that the local community, community development organisations and governmental agencies participate in them and cooperate with the school.

## Curriculum Pattern suggested by the Patel Committee

| *Class I-IV/V* | *Time Allocation* |
|---|---|
| 1. One language | 20% |
| 2. Mathematics | 20% |
| 3. Environmental Studies (Social Studies, Nature Study and Health Education) | 20% |
| 4. Socially Useful Productive Work | 20% |
| 5. Games and Creative Activities, such as Music, Dancing and Painting | 20% |

| *Class V/VI+VII/VIII* | *Time Allocation (per week)* |
|---|---|
| 1. Languages | 7 hrs |
| 2. Mathematics | 4 hrs |
| 3. History, Civics and Geography | 4 hrs |
| 4. Science—An Integrated Course | 4 hrs |
| 5. The Arts (Music, Dancing, Painting) | 3 hrs |
| 6. Socially Useful Productive Work and Community Service | 6 hrs |
| 7. Games, Physical Education and supervisory Study | 4 hrs |
| Total | 32 hrs |

| *Class VIII/IX-X* | *Time Allocation* |
|---|---|
| 1. Languages | 8 hours |
| 2 Mathematics Alternate I<br>or Alternate II | 4 hours |
| 3. Scienc (theory and practical) Alternate I<br>or Alternate II | 5 hours |
| 4. History, Civics and Geography as one course | 5 hours |
| 5. One of the following :<br>The Arts (Music, Dancing, Painting etc.) Home Science, Agriculture, Commerce, Economics, Social Reconstruction, Classical Languages etc. | 2 hours |
| 6. Socially Useful Productive Work and Community Service | 6 hours |
| 7. Games, Physical Education and Supervisory Study | 4 hours |
| Total | 32 hours |

The scheme for classes VIII/IX-X is illustrative only. The States/ Education/Examination Boards have been authorised to make some subjects compulsory and the others elective.

Patel Committee has also suggested that in the public examination at the end of class X, the number of subjects for external evaluation should not exceed seven.

### Conclusion

Our schools need a continuous programme of curriculum improvement to meet the problems posed by our complex culture and the ever changing world. According to the Commission's Report, "A curriculum cannot be regarded as fixed for all times—it should be a matter of constant experimentation with a view to revising it from time to time according to changing needs. The bounds of human knowledge are constantly expanding and, therefore, it is essential to go on examining and evaluating the contents of the curriculum, adding to it significant new items and weeding out from it whatever has ceased to have direct significance for the pupil and his immediate and future life."

Every nation is deeply concerned with relating its curricula to present day needs as the dogmas of the quiet past are inadequate for the stormy present. The realisation of this led the UNESCO to call on the International Advisory Committee on the School Curricula 1956-60, to investigate the problem. In India, Secondary Education Commision strongly recommended the establishment of Bureau and Boards for curricula research.

The greatest need in the direction of curriculum improvement is that the research scholars in this field of curriculum development should also work with the teacher who has the responsibility of translating their findings into a school curriculum. Unless this is done, the process of teaching will continue to be aimless.

### Summary

I. Curriculum is said to be the sum total of all the experiences which the child undergoes in a school.

II. For constructing school curriculum, these principles should be borne in mind:

1. Curriculum should be child centred.
2. Curriculum should provide fulness of experience.
3. Curriculum should make provision for flexibility within a framework of acceptable principles and values.

4. Curriculum should be related to the life, needs and aspirations of the people.
5. Curriculum should be able to develop a rational outlook.
6. It should lay emphasis on learning to live rather than on living to learn.
7. Curriculum should make provision for socially useful productive work.
8. Curriculum should be able to promote social justice, democratic values and national integration .
9. Curriculum should make adequate provision for the study of languages.
10. Curriculum should make provision for artistic experiences and expression.
11. Curriculum should make provision for physical development.
12. It should have provision for character building and human values.
13. Curriculum should provide for uniformity and variety.
14. Curriculum should provide for continuity in the whole programme.
15. It should be well integrated.

III. Patel Committee has suggested a comprehensive curriculum for the ten classes in school.

IV. Laboratories of research and experimentation are needed to keep curriculum offerings upto-date.

### Questions and Problmes

1. What is meant by curriculum ? What principles should be taken into consideration while constructing the curriculum ?

2. Make out a case for the inclusion of three languages and socially useful productive work in the school curriculum.

3. What machinery would you suggest for constantly developing, examining and evaluating the content of the curriculum ?

4. Critically examine the curriculum pattern suggested by Patel Committee.

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# 7

# TEACHING DEVICES

*Why teaching devices—Different teaching devices—Home-work—Evaluation—Summary—Questions and problems—Bibliography.*

## Why teaching devices

As discussed in the preceding pages, good teaching is causing, facilitating and promoting learning. In order to achieve the purpose, the teacher, like other craftsmen, has to use certain skills—commonly styled as "devices of teaching." These devices are the external modes or forms which teaching may take from time to time. According to John Mander, there are five main reasons which might justify the use of these teaching expedients. They are:

(a) to teach something more thoroughly so that the children may retain the subject-matter taught;

(b) to teach something more quickly. This will result in "covering more ground" in a given time, and thus give a better chance of "getting through the syllabus;"

(c) as a means of creating or sustaining interests;

(d) as a means of integrating a number of separate pieces, of work already learned by other means; and

(e) as a means of bringing with the experience and understanding of children something which is new to them. This often includes the presentation to children, in simplified form, of matters which are appreciated fully only by adults.

Thus, a proper use of these tricks of trade makes learning quicker and interesting.

## Different teaching devices

A number of classifications have been given of teaching devices.

John Mander has suggested two categories of teaching devices —(a) Devices of limited application and (b) Devices of general application.

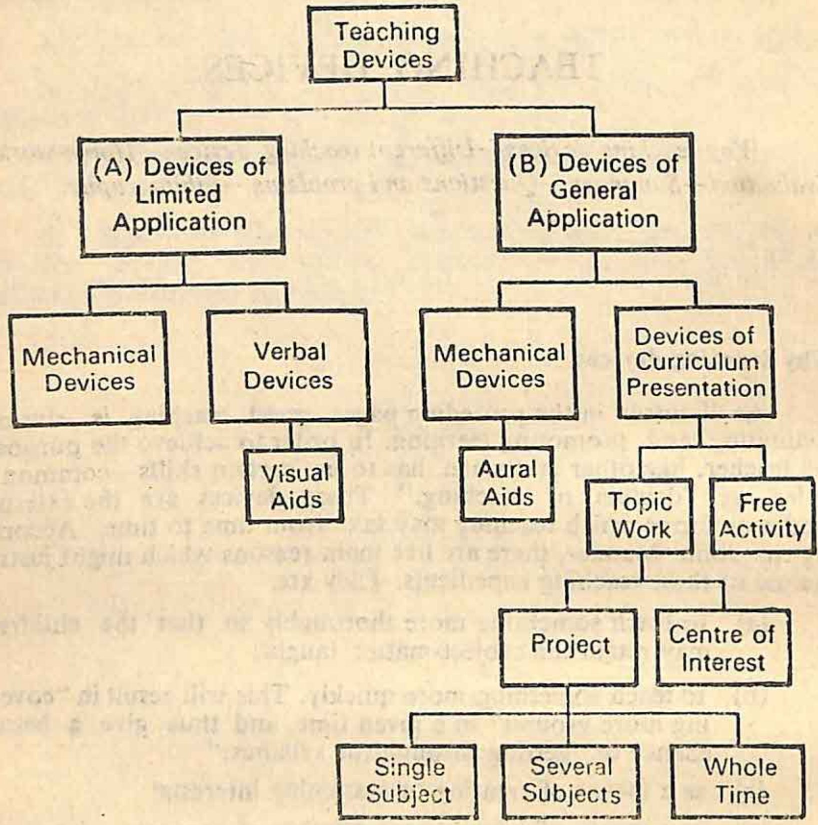

Fig. 2: Marders Teaching Devices

*Devices of limited application*: This category includes both skills of verbal presentation, suited only to particular facts, and mechanical devices which illustrate single facts or the process. The mechanical devices include much specialised apparatus. Every fact offers its own opportunity for bright imagery and forceful expression. Counting sticks for teaching elementary number combinations and words and letter-cards may be used for teachifig reading.

*Devices of general application:* In this category, devices such as cinema, film strip projectors, epidiascope linguaphone etc., may be used in the teaching of subjects. This category also includes devices of curriculum presentation such as projects, and units which can be applied in the teaching of any subject.

Curriculum may be taken in three forms:

(a) It may be left alone in its traditional form.

(b) It may be taken as "Free Activity" and without the control of the teacher.

(c) It may be taken in the form of Topic Work which may take two forms. The first is work on what is known as a centre of interest. In this the curriculum remains the same, divided into the traditional subjects.

In project work, the project is made the dominant factor and the curriculum is rearranged to meet the needs of the topic selected. The single subject project deals with one subject only and has no effect or little on the rest of the work of the school. In the several subjects project, many subjects and activities are undertaken. Half or more of a working day is devoted to several subject projects and the rest to usual class work. In the whole time project, all 'normal' work is suspended and the class works on the project only.

Charles L. Robbins has given another classification; (a) devices which create interest, (b) devices which provide work situations. Devices which can create interest include bulletin board, museum, calendar of activities and stories etc. Dramas, games, excursions, improvising apparatus, supplementary reading etc., are devices which provide work situations.

Devices may also be devided into yet another category—teaching devices and fixing devices. Under the first category we have all the different types of devices which help in effective teaching such as illustrations, questioning, answering etc. Fixing devices are meant to fix the material learnt in the mind of the learner. Drill, review, recapitulation, etc., are fixing devices. It is not always possible to draw a line of demarcation between a teaching device and a fixing device as the same may serve both the purposes. Questioning is such a device.

There is another classification of devices—artificial and natural devices. Oral communication through narration, exposition etc., are artificial devices. School visits celebration of festivals or other audio-visual aids are natural devices of teaching.

Now we shall discuss some of the important teaching devices.

**Types of devices**

*Narration*: Narration is one of the most important methods of communicating knowledge. In subjects like history, literature and descriptive geography, narration can be used as one of the most effective devices. We know that everything cannot be elicited from the students—no doubt questioning is an important device of teaching. "Narration," in the words of Panton, "is an art in itself which aims at presenting to the pupils, through the medium of speech, clear, vivid, interesting, ordered sequence of events, in such a way that their minds reconstruct these happenings and they live in imagination through the experiences recounted either as spectators or possibly as participators."

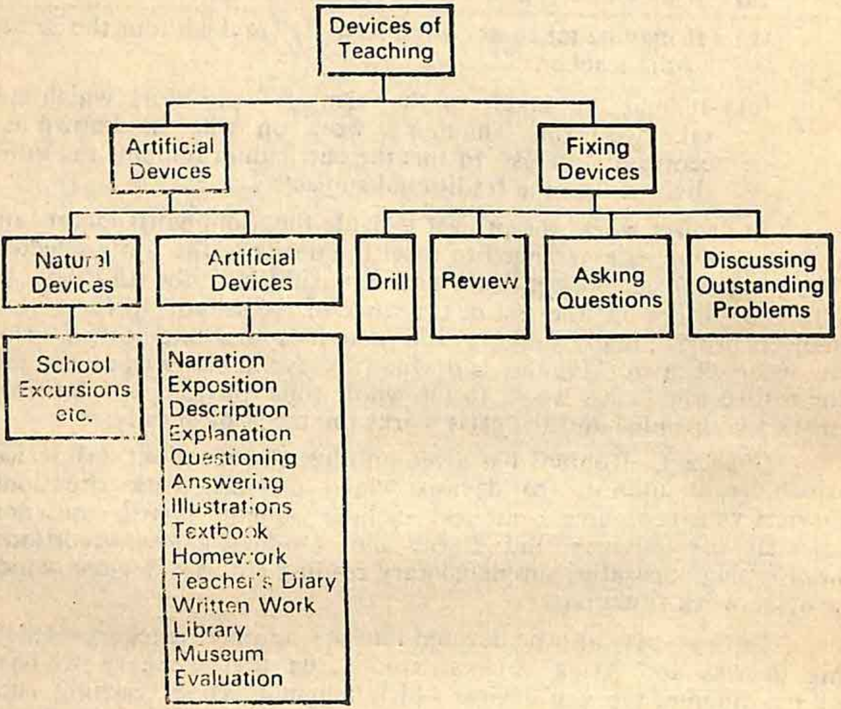

**Fig. 3:** Devices of Teaching

Narration is an art which every teacher should learn as he has often to narrate or tell a story, give account of events or to sketch and recount some happenings. To be a good narrator, a teacher should know the the skilful use of language and speech. He should be able to use appropriate language which clearly depicts situations and happenings.

The chief form of narration is story-telling, Children's love for stories is proverbial. It will give the teacher rich dividends if he were a good story-teller. The teacher should pay special attention to the following points:

(1) The story should be narrated in an orderly manner. Such expressions as "Oh, I forgot to tell you about an important point" does not speak well of a narrator.

(2) While narrating the story, proper interaction, gestures etc., are very necessary. It should be told vividly in a natural tone and pleasant manner. It should never be read out from a magazine, newspaper, or a book.

(3) Narration should suit the audience If it is a story, it should be adapted to the audience, taking care never to distort, the historical facts.

(4) Narration should be made interesting by the use of handy illustrations such as metaphors and similes relating to the verbal experiences are familiar to children. These illustrations add to the effectiveness of the narration.

(5) The teacher himself should be interested in the narration. It is said, interest is infectious. When the teacher is interested, the pupils will also be interested. For this, it is essential that the teacher understands the purpose of narration. The purpose can be either enjoyment or development of imagination, interest etc. The teacher must see that the narration achieves the purpose.

(6) As children are more interested in action and sense impressions, long descriptions should be avoided. Catchy words and phrases can be used to create proper images. Whenever there is a speech or dialogue, it should be given in direct speech and not in indirect one. Narrations can be made more interesting if one of the characters takes the role of a narrator. The story of Samudragupta and his political exploits can be told in the first person.

*Exposition*: Exposition is yet another important device of teaching. It means opening, exhibiting, displaying, disclosing; it just means making clear the new information. The purpose of exposition is to enable the child to grasp the sense or meaning of the subject-matter presented to them in an intelligible manner. The essence of good exposition is that it must be clear. The objective can be achieved in many ways:

(1) The matter to be expounded must itself be a unity and on a specific point. The matter should be so arranged that it has a clear impression on the minds of pupils.

(2) Human mind works only at a certain pace. Some people think more slowly than others. It is necessary, therefore, that there should be pauses in-between the lesson. This paragraphing, so to say, has a psychological importance beyond its logical aim. The pupil feels refreshed to secure the new knowledge bit by bit; the slow learner is enabled to adjust himself for new matter. The pauses, in fact, serve

the same purpose as the intervals between the courses at a long dinner.

(3) Frequent references backwards and forwards, among the parts, aids clarity and recollection. In deciding the size of the piece to be exposed, we encounter many difficulties due to the widely varying mentality of the children in a class. Not only are some children more intelligent than others, but each child learns in a different way from his classmates. Again, the rate of exposition also depends very largely on the teacher's natural rate of speech. This can vary within very wide limits, without being too fast or too slow.

It is necessary that the teacher should have a clear enunciation and the trick of putting things plainly. If the teacher has these qualities, he will win the attention of children faster than his fellow teacher--slower or less distinct of speech.

When the whole class is backward, the rate of exposition is slow. There is then frequent repetition and the ingenuity of the teacher is taxed in finding out new ways of presenting the same information. Actual repetition will produce dullness. To make this work tolerable, the new material must be worked up into fresh combinations and seen from different angles. The repetition is to be there but in a form that widens rather than restricts knowledge.

*Description*: According to the dictionary, description is defined as "the act of representing a thing by words, amount of the properties or appearances of something." In other words, description is the portrayal in words of a person, object, thing or events. The purpose is to give a definite mental picture of the same to the pupils. For achieving all this, most effective use of language and speech is required. The following points should be borne in mind while using description as a device of teaching.

(1) The teacher should have a clear and strong visual image of the object he describes.

(2) Important points should be repeated and stressed.

(3) Mere word pictures are not enough. As far as possible, description should be illustrated with the help of models, diagrams, pictures, etc.

(4) The description should be simple and in a suitable language.

(5) Handy illustrations such as metaphors and similes help to vivify description.

*Explanation*: Explanation is also a very important device of teaching. The object of this device is to enable the children "to take an intelligent interest in the proceedings, to grasp the purpose of what is being done, and to develop their understanding of how to do it." In the words of Panton, "Explanation forms a kind of bridge between telling and revealing knowledge to the learners, and it involves a number of other techniques as well as narration and description. Throughout the process, the teacher must keep in close touch with the minds of his pupils, suggesting lines of thought, questioning them, answering their questions, setting them on practical work, exemining the results obtained, discussing significant problems etc."

The following points should be borne in mind while using this device:

1. There should be a definite aim before the teacher and the students.
2. There should be a logical sequence in explanation. The theme should be divided into different well-arranged sections.
3. During explanation, the children should be encouraged to ask questions to clear their doubts, if any.
4. The language used in explanation must be simple and suited to the level of the pupils.
5. Important points should be stressed, writing the essential points on the blackboard.
6. Various types of illustrations or audio-visual aids should be used to make explanation effective and interesting.
7. The teacher should ask questions to test whether explanation has been well-understood.
8. A summary of the whole discussion should be given at the end of the lesson so that the points are driven home to the pupils.

*Questioning*: Questioning is one of the most important devices of teaching. It plays a very important part in *learning, teaching and testing*. It is said that the success and efficiency of our teaching depends more on the skill and judgment with which we put questions than on any other single circumstance. *The 'teacher who never questions, never teaches.'* In fact, the power to question well is one of the fine arts of teaching. According to Raymont, "The acquisition of a good style of questioning may be laid down as one of the essential ambitions of a young teacher." Rudyard Kipling has well said,

"I keep six honest serving men;

They taught me all I know.

Their names are What and Why and When

And How and Where and Who."

Questioning, in fact, is one of the tricks of trade for a teacher.

Also, questioning is for the child a natural and enjoyable means of intellectual and social growth. Charters has called this age-old medium of learning a "racial tool" for it is generally recognised that for generations, questions have been one of the most important means of stimulating, thinking and learning. The minds of the learner and the teacher can be brought into close touch, and learners can be led to creative effort through this device.

Questioning, in fact, "is the key to all educative activity."

*purpose of Questions:*

1. Questioning can be used for exposing difficuties, so that these may be resolved.
2. Questioning can be used for promoting thinking, searching out new ideas and view points.
3. Questioning can be used for developing appreciation and ideals.
4. Questioning can be used for directing learning to deeper and broader understanding. Pupils doing reading work for homework or listening to a lecture in class may concentrate harder if they know that they are to be asked questions afterwards.
5. Questioning can be used to revise work covered earlier.
6. Questioning can be used to prepare pupils' minds for new material, to show them the limits of what they know and by appreciating their ignorance lead them to feel the want of further knowledge. For example, pupils who are successfully solving problems leading to simple equations soon realize the need to learn how to solve quadratic equations, when confronted with a problem which gives them an equation involving a term of the second degree.
7. Oral questions have a disciplinary value in class in keeping up attention and preventing misbehaviour. A pupil who appears to be inattentive or otherwise preoccupied can often have his conditions remedied without reproof by confronting him unexpectedly with an oral question on the subject of the lesson.
8. Questioning can be used for creating, developing and maintaining a good emotional and intellectual atmosphere as well as a high level of effort in the classroom.
9. Linked or sequential questions may be used frequently to assist pupils in reaching conclusions. These question chains

have a special place in the development lesson in which the teacher wishes to use the pupils' background of knowledge and experience in aiding him to form judgment or make decisions.

10. There are times when a teacher may ask rhetorical questions to which no reply is expected. Their purpose is to lay emphasis.

### *Classification of questions*

Questions may be classified in a number of ways according to the purpose they serve, the stage of the lesson they are put, and according to the particular form or structure. However, a general and broad classification may be as follows:

(a) Natural questions

(b) Formal questions

When the questioner wants to elict some information and for that purpose makes a query—he is asking a natural question.

Questions are formal, when the questioner already knows about the information asked for. Most of the questions, which are put to pupils in the classroom, belong to this category.

Formal questions may be further classified into the following two groups:

(i) Testing questions

(ii) Teaching or developing questions

Testing questions may further be sub-divided as:

(i) Preliminary or introductory questions

(ii) Recapitulatory questions

Let us now discuss these different types of questions:

*Preliminary or introductory questions*: These questions are generally asked at the beginning of a lesson. An attempt is made to test the pupil's previous knowledge, as to what he knows regarding the particular topic. The teacher wants to prepare the pupils for the reception of new knowledge. He tries to know what the pupil knows and leads him to what he does not know. Introductory questions should be limited in number and must be asked briskly. Preliminary questions must focus the attention of the pupils on the topic in hand.

*Developing or teaching questions:* These questions are asked by the teacher in the course of a lesson and help the teacher educe the new principles, elicit the information and impart new knowledge. With the help of developing questions, the teacher develops a particular line of thought, leads the pupils to discover facts for themselves and enables the pupils to formulate new generalizations. The knowledge is built up step by step.

Such type of questions must be asked with great care. Each question should be a step forward in the development of the lesson and the questions connected with each other in such a way that one question grows out of the other. Vague and irrelevant questions should be avoided. The teacher should know how much to elicit and how much to tell. The pupils should be encouraged to ask questions and develop their own knowledge. When the teacher is narrating a story,it is advisable that he asks questions either at the end or he may narrate again and then put the questions to the class to find if the story has been rightly understood.

*Recapitulatory questions*: These questions are asked at the end of each section in a lesson as well as at the end of a lesson. Such questions are asked to ensure that the knowledge has been properly learnt and grasped. Revision and repetition also help in fixing the knowledge learnt in the minds of the students. These questions deepen the impresions already made.

The recapitulatory questions should not merely test the factual knowledge; these may test the application of the principles or facts learnt. Comparision and appreciation type of questions can prove useful. Recapitulatory questions should be differently worded from the quesions at the sectional revision stage.

*How to ask questions effectively*?: Any one can ask questions but to ask them purposefully and effectively requires understanding, insight and experience. The following suggestions can prove useful:

(i) *The question should be stated clearly, definitely and concisely*: Give a pause after posing the question before naming the boy who shall answer it. This helps to ensure that the whole class will give attention and thought to it. If the name is announced before the question, the rest of the class will have no inclination to listen.

(ii) *Encourage development of thought:* The teacher can do it by paying close attention to the pupil while he is speaking. It has a good psychological effect upon the pupil and it also sets a good example to the rest of the class. In order to stimulate thinking, it is not only necessary to show interest while the pupil is speaking, but much will depend upon the treatment the teacher gives to the response that has been made. He may call on others to evaluate the remarks or to express their personal opinion on the same topic, thus introducing the interesting elements of comparison and contrast; he may comment on what was said in a way that will show the pupil that his reply did not fall on unresponsive ears; he may emphasise certain good points in the answers or may himself supplement information.

(iii) *Allow sufficient time for replies:* The time that should be allowed for replies to questions will depend upon such factors as time and difficulty of the question. Factual questions calling primarily for memorisation should call for quick responses; short, objective type test questions should like-wise be answered quickly and concisely—often with a "yes" or "no" or "true" or "false". Questions demanding critical thinking and problem solving require more time. In short, the time allowed should be enough to permit all students in a class to give the question adequate thought.

(iv) *Proper discipline must be maintained:* The teacher should make it clear to the class that no one who calls out "Sir!" "Sir!" insistently shall be asked to answer any question. Enthusiasm to answer a question sometimes involves jumping up, waving an arm, and pupils even leaving their places. Students should not be allowed to answer without permission. Any boy, who flicks or snaps his fingers in his eagerness to gain attention, should be cautioned.

### *Good procedures in questioning*

While directing learning by means of questions, the teacher should bear in mind the following points:

1. *The sequence of questions should lead to the development of a particular understanding, idea, appreciation or ideal:* Questions are teaching and learning devices. It is necessary that the purpose should always receive our primary consideration. Rambling questions keep learners in a confused state of mind. It is necessary, therefore, that questions should be clear and to the point. The vocabulary and usage should be within the age range of the learners. Oral questions should be brief enough to be easily understood.

2. *The question should be precise and admit of only one answer:* Avoid "what building was constructed when, where, by whom, and why?"

3. *Ask questions within the range of pupils' experience and knowledge:* Generally the adults forget that young persons are learners and not learned. The questions should be neither too easy nor too difficult. The standard of difficulty should be linked to the intelligence or attainment of individual pupils. Difficult questions should be as ked of abler pupils and easy questions should be asked from the average. Let each child get the satisfaction of being able to answer some questions.

4. *Give time for reasoning and other higher mental processes to operate:* Refrain from making the classroom "a place for displaying

knowledge"; instead, make the class-room "a laboratory for experimenting and using it."

5. *Questions should be relevant to the theme and help to unify learning:* "Good questioning" in the words of F. Theodore Struck, "which proceeds in a logical sequence should aim to unify concepts that might otherwise be isolated; to correlate the results of study and experience; and to relate one 'subject' with others."

6. *Be conversational and natural during question:* Be a helper, not an inquisitor. Pupils will soon learn whether the class period is for checking results or whether it is for learning. The attitude of the director becomes the attitude of the one directed.

7. *Be jovial and cheerful:* Learning can be delightful and pleasant, co-operative and profitable, only if the personal relationship between pupils and teacher is conducive to mutual helpfulness and understanding. The art of questioning is to stimulate imagination, into the questioned and frame the question accordingly.

8. *Encouragement motivates, discouragement represses:* There will be ups and downs in the learning, but keeping the success in mind inspires more than utilising failures as warning signals.

9. Sometimes as a variation from the normal routine, *encourage pupils to ask questions*. Their questions, if sincere, show exactly what the difficulty or interference is in the path of progress.

10. As a rule, it is better to frame the question in a difinite way and then ask it as framed than to ask for the same reaction in several different wordings. It may discourage response and hinder the mental activity of the students. The question should be put in the best form in the very first instance. For this, it is essential that questions are prepared before hand.

11. *Socialize questions:* Pupil-centred instruction implies that the pupils realize that it is their responsibility to propose, plan, and put it into practice. Questions can help a lot in vitalizing socialized learning.

12. *Back benchers should be given adequate attention:* This will make them active participants in the class.

13. *Questions should draw forth a well-rounded thought.*

14. *Questions asked of a class on a piece of newly prepared work should always be positive and creative, aimed at strengthening their understanding of it, sharpening their alertness to its implications and exposing problems which they can help to solve.*

15. Question should seldom be repeated. Repetition promotes inattention.

16. Good questioning will not be confined to memory or recall

questions. There will be a reasonable proportion of questions designed to stimulate thought.

17. The form of the question is important. Questions should follow the form of the interogative sentence and begin with words such as who, whom, which, what, how, when, where. "Can you-tell-me?" questions should not be asked.

Theodore Struck has very well said about good questions: "Good questions, by their very nature, are educative, and they have a very prominent place in kinds of learning. If used in the right way, at the proper time, questions lead to new realms of understanding: they serve as means of organizing knowledge; of correlating the results of educative experinces: of tying together units of learning; and of integrating personality."

### What to avoid in questions

1. *Purposeless questions should be avoided:* Many new teachers tend to over-question to such an extent as to retard teaching, smothering the point to be learnt in a cloud of bewildering answers. It is a waste of time to question pupils in an endeavour to extract from them the correct answers which they can only learn by being told directly.

2. *Questions should not be verbose*: For example, "You are, no doubt, familiar with Archimedes' principle by this time, so you should be able to make applications of the principle to some present-day problems in science without much difficulty, and, I will call upon Renu to show what uses are made of the principle in modern civilization," is a quetsion unnecessarily wordy.

3. *Avoid questions which contain their own answer:* For example, the question "*Does light travel faster or slower than sound?*" is not a good question.

4. *Questions should not ask too much of the pupils*: Requiring a precise definition of a common article like a biscuit may be an excellent way of getting a pupil to think, but to supply it is no easy task.

5. *Questions should not be asked in the form of a statement which is altered into a question by omitting a word and substituting 'what'*: "The highest mountain in India is what?" Or worse "*Samudra gupta was very what?*"

6. *Asking questions round the class in strict rotation is inadvisable*, for there is no incentive for a pupil to listen to any question except his own.

7. *Questions that involve deciding between alternatives are not the best because of the temptation to guess*: So avoid double-questions, involving two or more distinct, unrelated ideas.

8. *Avoid echo questions*: This first Battle of Panipat was fought in 1526. When was the First Battle of Panipat fought? is a case in point.

9. *Questions should not be allowed to continue for long*: Asking a large number of questions suggests the maintenance in the classroom for considerable portion of time nervous tension whereas there should be natural and normal conditions. Also, it will lead to the teacher doing most of the work of the class hour instead of directing the pupils in the doing. The large number of questions suggests that there is little thought given to the needs of individuals. The teacher sets the pace in his questioning: the pupils follow as a body, or drop by the way side. The moment we admit that we ask from 75 to 175 questions in a class period, we commit ourselves as "drivers" of youth instead of "teachers", drill masters instead of educators. It has been observed that most classes become restless and excited after ten minutes of rapid-fire method of questioning.

10. *Rhetorical questions have little place in the class-room below senior classes*: Despite their apparent clarity to adults, their meaning is sometimes disastrously interpreted somewhere in the class. It is rather disconcerting when they are answered wrongly.

11. *Under normal circumstances, there is little justification for repeating questions and answers.*

12. *Too many questions should not be asked of one or two pupils only*: The aim should be to develop each individual as fully as possible in the time that is available.

13. *The questions should not be rephrased or changed without sufficient reason:* Any change in the question disturbs the mind of the child and weakens promptness of response.

14. *Do not feel it necessary to answer every question asked by pupils:* Never resort to "bluffing". Be a learner along with the class. "I will find out and let you know or probably you will discover the right answer before I do" is a good way to denote that learning is continuous, even for the teacher.

15. *Make pupils feel responsible for the answers to questions asked by their own classmates*: The teacher should not feel that she must be the final authority. Shift responsibility to pupils so far as possible.

*Answering*:

Questions are asked to know what the pupils know. How much the pupils know will be reflected in their answers. Much tact, insight and effort is required for dealing with the pupils' answers. Complete development of answers requires effort, and the effort put forth will depend upon the standards upheld by the teacher. Pupils do just what is expected of them.

The pupils' answer can be classified into five types:

(1) All correct answers

(2) All wrong answers

(3) Partially correct and partially wrong

(4) Correct but incomplete

(5) Wrong but intelligent

(6) Mischievous

Let us see how to handle the different types of answers.

*All correct answers* should be accepted. They should be welcomed and appreciated. Such answers are worth repeating. Stereotyped phrases like "very good", "quite right" in reply to every answer is to be avoided. *All wrong answers* should be rejected but without ridicule. A wrong answer should merely draw the comment "wrong, Pawan!" and the teacher should proceed asking that very question. Wrong answers are better corrected by getting the right ones from other children. And the child who gave an all wrong answer should be asked to repeat the correct answer when it has been given by some other child. An incorrect answer should never be repeated.

*In the partially correct and partially wrong answer*, the teacher should accept the correct part, reject the wrong part, ask a supplementary question to get the wrong righted.

*In a correct but incomplete answer* accept the correct part, ask a contributory question to get the incomplete part completed. The inadequacy of the answer should be exposed but with kindliness, not with irony or ill humour.

*Wrong but intelligent answer* can be due to various factors, e.g. the difficult language of the question or the tough subject matter. Very sympathetic handling is required because the pupil is sincere. The only problem is that he has not been able to follow the question. An honest answer should never be snubbed for such action may discourage the very attitude of mind a teacher wishes to promote.

A pupil, giving *mischievous answers*, should be cautioned.

*Guidelines for dealing with answers*:

(1) *Answers demanded of children should be full, concise and clear, accurate in wording and content*: There are times when short or even one word answers can be accepted. This is particularly so in oral arithmetic. But all verbal work, in all subjects, has an *incidental* part in language teaching. Full and detailed answers to questions can, therefore, provide a useful exercise in sentence construction.

(2) *The pupils should not be encouraged to answer in unison:* Simultaneous answering is a sign of weak discipline.

(3) *Prompting by other pupils should be watched:* A boy who is near the one asked, can often mouth or whisper an answer which, the teacher at a distance, cannot hear. To prevent this, it is better not to wait for the answer from the boy, who obviously does not know, but to pass on to those who do.

(4) *A slipshod answer should be refused or a rewording required:* or if this is too much for the pupils, the teacher should give the more precise answer himself. To pose a question and answer it is better than to leave it unsatisfactorily answered or unanswered altogether.

(5) *Make the best of the answers which the pupils give:* Very often the pupils have the right ideas but find difficulty in expressing themselves clearly. They need help. The inadequacy of the answer should be exposed but with kindliness not with irony or ill humour. An honest seeker should never be snubbed. Good answers should be commended and appreciated. It costs nothing but benefits much. Students feel recognition and this proves very helpful. Half-hearted acceptance of answers can prove very harmful.

(6) *The teacher should avoid over-answering by the few because that will mean a mental torture for many.*

(7) *Avoid repeating the answers of the pupils in a mechanical way*: "Nothing, in fact, is more dreary than to listen to a set of questions and answers, with every answer repeated by the teacher." Each repetition becomes monotonous and tedious.

(8) *The pupils must be asked to answer audibly or to be heard be all the classes.*

(9) *Good answers may be repeated for emphasis* as, for example, in a continued course of reasoning, giving the class time to appreciate what is said and what it really means.

(10) *Answers should not be accepted with the same phrase of commendation:* Often no phrase is required, and the teacher should always avoid a mechanical repetition of such remarks, "very good", "that's good" etc.

Ward and Roscoe have given a beautiful note for dealing with the answers, "There are no rules. It is unwise to pass over all wrong answers, as it is unwise to attempt to deal with all. Some are genuine misconceptions, which the teacher must clear up at the time or later on; others are imperfect and incomplete answers, genuine also, which must be rounded off; others are haphazard or stupid and should be treated with contempt or else with such brief but emphatic words of disapproval as the teacher may have at command."

### *Illustrations*

Illustrations mean such things—models, pictures, charts etc., which help in the explanation of difficult ideas and processes by throwing light upon them. They make an appeal to the senses and the imagination of the learners, make the idea clear and enable the children to grasp correct knowledge. They overcome and clear up difficulties. They help in simplifying matter and giving vividness to explanations. They stimulate interest and excite curiosity in learning. They introduce variety in the lesson and secure better attention. In the words of Hobson, "No word of mouth or printed page can have meaning to an individual except, as he has within his experience the necessary sense perceptions which will serve as a basis for interpreting it." Thus illustrations are a good antidote to the disease of verbalism. Easy and familiar things help in explaining difficult and complex ideas. They lessen the intellectual tensions, lighten the knowledge load and effect economy by proper associations. Wisely selected, timely exhibited, and intelligently and tactfully used, illustrations are a great asset to teaching.

*Types of illustrations:* They can be divided into two main categories:

(a) Non-verbal, natural, objective or concrete illustrations

(b) Verbal illustrations

Under the first category we have:

(i) Concrete materials such as actual objects or specimens

(ii) Models or solid representation of objects

(iii) Pictorial or photographic representation of objects

(iv) Blackboard sketches, diagrams, paintings etc.

(v) Graphs, maps and charts

Under the category of verbal illustrations, we have:

Analogies, comparisons, similes, word-picturers, etc.

The relative importance of these two types of illustrations depends upon:

(a) The nature of the subject

(b) The level of pupil's development

Lower the classes, the more profitable will be concrete illustrations. As the child grows and his intellectual level rises, we can use pictures, diagrams, sketches and graphs etc. Verbal illustrations such as analogies and similes etc., should be used with children with a higher level of intelligence. They should be used with chidren at the high stage.

But it need be remembered that illustrations are a means and not an end in themselves. They are good servants but bad masters. Their proper use helps in learning proper teaching but their misuse or over-use, is likely to spoil the lesson in hand. It is a wrong belief that a lesson cannot be given without the paraphernalia of illustrative materials. They should not be merely regarded as a means of making a lesson attractive. They need to be used with care and caution. *The following units will be useful in the proper use of illustrations:*

1. They should be simple and comprehensible. They should be easily understood without any need for comments and explanations.
2. *They should be accurate and clear.*
3. They should be relevant to the topic.
4. Highly finished illustrations are not always the best ones. Illustrations should be simple that can be worked out in the presence of the class.
5. Too many illustrations should not be used in a single lesson. Only a few, but the best, should be made use of to illustrate a lesson.
6. Illustrations should be properly handled and exhibited so that every child is able to see them clearly and easily. They should be kept before the students for a sufficiently long time so that they can observe them fully.
7. It is not a good practice to lay out a number of illustrations on the table before the class, at the beginning of the lesson. Pupils become more interested in the illustrations than the lesson itself. The relevant illustration should be shown at the proper time during the course of the lesson.

### *Text-book*

The text-book, since times immemorial, is considered an important instrument of teaching and learning. In the words of Raymont, "In the old days when the master sat at his desk and called up individual pupils to 'say their lessons,' the text-book was, of course, the chief instrument of instruction; but now that the children are taught collectively in groups, the oral lesson is more commonly relied upon, and, has to a great extent, superseded the text-book. Moreover, under the influence of writings and experiments of Rousseau, Pestalozzi, Froebel, John Deway and Mahatma Gandhi, there was a revolt against bookish knowledge and conventional methods of education. This led to the attempts, for dispensing with the book, as an instrument and tool for imparting knowledge.

Recently, in the first half of this century, a thorough testing was undertaken by some thoughtful students of education in the U.S.A.

who experimented with a bookless school. They, however, arrived at the conclusion that 'book' could not be dispensed with completely from the system of education. No doubt, the learning process is now facilitated by the use of charts, models, magazines, excursions, filmstrips, radio, television, daily diaries of the pupils etc. Unit teaching, broad-field and integrated courses and the problem approach have all spurred the development and the use of varied teaching materials to supplement and in some cases to supplant the text-book. But the consensus opinious of educationists in India, as well as abroad, reveals that the text-book is an integral part of and educational system. For example:

(a) According to the report of the Text-book Committee of the Central Advisory Board of Education, "A modern educational system without text-book is as difficult to imagine as Hamlet without the Prince of Denmark.

(b) The Secondary Education Commission stated, "It is desirable to modify the rigid dependence of education on certain prescribed text-books, and, therefore, we recommended that text-books should not be prescribed for every subject. In the case of languages, it seems desirable to prescribe definite text-books for each class in order to ensure proper gradation. So far as the other subjects are concerned, the text-book committee should approve a number of suitable books in each subject and leave the choice to the institution concerned.

Thus, it is the general opinion that a text-book does occupy an important place in education—it, being an important aid, to teaching as well as to learning. Its use at different stages depends to a large extent on the nature of the subject and the intellectual level of the pupils. Generally speaking, text-books play a more prominent role in high school instruction than in the elementary grades.

A text-book is an economical device, as it contains, the intellectual deposit of specific experiences that have been developed into generalizations. A good text-book is the precious life-blood of a master spirit. As the matter given in the book is logical and comprehensive, it sets a standard of minimum essentials to be achieved by pupils of all categories. It gives the beginner a grasp of new matter. It gives the direction and saves time and energies of the teacher and the puipils.

The text-book makes self-teachining a possible proposition. It is generally seen that even the impact of the best spoken message is transitory in character and its impression is carried only in fragmentary form. Even the most attentive listener loses any but the obvious connections in the discourses. Through the text-book the pupils will be able to obtain a connected view. So, the best planned programmes, carried out by the ablest teachers, cannot achieve maximum effectiveness unless implemented by first class text-books and teaching materials.

Text-book is necessary because of the limitations of the *classroom situations in most of the Indian schools*:

(i) Larger number of students in each class.

(ii) Teacher's worries about finishing the prescribed syllabus of studies, within the specified period of session.

(iii) Students of all types possessing different abilities and mental make-up, clustered in one single class, which multiplies problems for the teacher and the taught.

(iv) Non-availability of other teaching aids and devices.

The text-book also provides a highway for carrying better practices to all the schools. Some sort of uniformity of good standard is ensured. The text-book furnishes a common basis on which to master the process of reading, analysing, outlining and summarizing. It thus furnishes a common laboratory in which to develop study skills.

Good text-books can co-ordinate the activities and bring about the intellectual rapproachment of people. They can serve as organs of national co-ordination.

Thus, the text-book is a useful device helpful in the teaching-learning process. If used with care and supplemented with other up-to-date literature, it can be a very useful instrument of teaching. It can be a good servant. What is of utmost importance is, the text-book should not become the master of techniques followed in school. The text-book is to serve as a means and not an end. The text-book is not something which has to be studied for its own sake. The object of the work done is not mastery of a book; it may be necessary to master what is given in the book. The text-book should never constitute a boundary; it should never set a limit. The students should never have the idea that their task is simply to learn what is in the book and no more. The book must never take the place of the subject; it must not be mistaken for reality. In short, it should be subsidiary and supplementary, rather than primary and fundamental.

To prescribe one book for a particular grade will not help. Every school should have a library of text-books at its disposal. There should be series of text-books written in collaboration by writers from two or more countries. As, however, good the 'staple' text-book, it is unlikely to be good enough to act as the pupils' sole support.

The teacher should not be a mere uncritical, mouth-piece of what is contained in the text-book. The best of text-books are fallible like the best of men. The teacher should see that it does not become the whole outline, content and plan. He should also see that the text-book does not monopolise the whole time of the pupil and that it does not become the sole source of his reading. On the highest level, text-book may be used as a supplement, a basis for common understanding, and a point of departure; it should not dominate or determine the content or procedure of the course.

The teachers should use the text-book as a tool of learning, along with other tools such as maps, charts, firms, radio etc., in active teaching methods. In order to be qualified for such a role, he must be well-trained in pedagogy and the use of text-books as there is always the danger of misuse of this tool.

### *How to use the text-book?*

Basic text-books are likely to be widely used for years to come. So, the teacher must learn how to make maximum use of them. The teacher may use the text-book in four ways:

1. *Exploratory readings*: The text-book can be used as a point of departure in the early stages of a unit to enable the pupils to find out "what it is all about" and to establish a common background of basic information on the part of all pupils. If a text-book is used in this way, it will help introduce the pupils to some of the key ideas of the unit, acquaint them with vocabulary, help them learn enough about the topic to enable them to proceed intelligently.

2. *Securing facts related to the unit:* The text-book may serve as a source of information, when the unit is under way.

3. *Map, chart, graph or picture study*: It is said maps, charts, graphs and pictures can be used more effectively when each child has one in his hands than would be possible by passing a single point around the class-room or posting one on the bulletin board.

4. *Summarization of learning:* The text-book can be used profitably to summarize the learning through unit activities.

Thus the text-book may serve as a point of departure for unit study and frequent point of call and a point of return.

### *Selection of a good text-book*

As mentioned earlier, a text-book is only an aid, a tool, a device. To be helpful and useful, it must contain all the qualifications of an aid, a tool, a device. Below are some of the essentials which must be there in a good text-book:

1. The text-book should be of a very good quality, the result of much research, experimentation and study. According to Walter de la Mare, only the rarest kind of best in everything can be good enough for the young mind. One has to catch the glimpes of the early years to be able to do justice to the art of creating child literature.

The writer must be able to recover the intense delight and happiness, fear and grief and pain of earlier years. A good text-book creates a desire to read, to think and solve problems.

2. A good text-book is a means and not an end in itself. It is a means by which the student is helped in his study.

3. The text-book must be well-graded that is, suit the capabilities of the children for which it is intended. Such facts and knowledge, as the text-book gives, must be clearly, simply and logically set out. The ideal text-book needs to fit in with the scheme of child-centred education. Just as the world of the child expands in concentric circles as he grows, so his text-book must reflect the stage he has reached.

4. The text-book should open up various new avenues of thought and study. A good text-book will make it very evident that what is given in the book is only a beginning. It will create interest and help to develop that interest by suggestions as to how what is given in the book may be followed up and developed. Such books will enable students and teachers to avoid the disastrous fallacy that all that is to be done is to master what is given in the book. A good text-book should give references to other books on the same subject suited to the age of the pupils for whom it is written, and will thus help to widen their outlook, develop their interests and open up vistas of knowledge and discovery.

5. To say that a text-book should be interesting, is almost a truism. It must be interesting to keep the children interested in learning it. It must be well written and beautifully compiled so that it might win the pupils' goodwill and retain it by virtue of more solid qualities.

6. The text-book should be well-illustrated with attractive, colourful, inspiring drawings, and photographs. It should be attractive, inviting, a pleasure to look at and read. The illustrations should be well-chosen and, as far as possible, connected with the main theme, carrying through a sequence of thought parallel to the development of experiences in the class-room itself.

7. The text-book should be up-to-date as far as its content is concerned. It should be frequently revised to eliminate those things which no longer hold good and to add those which have to play a significant role.

8. The text-book must be complete with its table of contents, illustrations, charts or other references. Text-books meant for higher classes must have references for supplementary reading at the end of each chapter. An index should form part of the text-book for higher classes. It should be detailed and complete, for training in its use is one of the most valuable features in some subjects, forming a habit of reference and comparison on the pupil's part.

9. The text-book should be free from any bias and present

an accurate and comparative view of the ideas of different people. Too much nationalism in text-books is dangerous as it will tend to be dogmatic, conclusive and official. Let it not sow the seeds for a crop of hasty reflexes, snap judgments and emotional reactions. On the other hand, the text-book should inspire higher ideals of brotherhood, communal harmony and international understanding.

### *Homework*

Assignment of homework is one of the forms of adult-centred or teacher-centred methodology. This methodology has great educational benefits. It is argued, if learning is worthwhile, it should not be confined merely to the hours students spend in the classroom. This device gives opportunity to puplis to plan and perform their work independent of the guidance and help of the teacher. It is a valuable means of study without the restrictions of classwork and supplements the teaching work done in the class. Pupils' ability in the better use of books and resources outside school, improves. It involves much repetition that is essential for fixing the lesson taught in the class. It develops the moral and intellectual qualities of self-reliance, self-direction and initiative in grappling unaided with the problems arising from the work. It stimulates in the pupil voluntary effort to follow up the study of subjects that appeal to his interests and accustoms him to revise and consolidate the work done in the school. Moreover, the syllabus for different classes in different subjects, is so heavy that it will be impossible to cover it without the aid of homework. Further, homework establishes a habit of reading regularly—a habit which goes a long way in the pursuit of knowledge. Again, it is with the help of this device, that the parents are able to examine and inspect from time to time the work of their children and to suggest further improvements with the co-operation of the teacher. Thus, homework properly understood, skilfully planned, intelligently assigned and, sympathetically checked is indispensable and invaluable.

Unless proper care and thought are given to the problem, there is the risk of homework becoming oppressive and inflicting incalculable moral, intellectual and physical injury on the pupils and thus self defeating. Students may not see homework as very important at all and may resent it as a device used by adults to keep away students from doing what they want to do.

### *Problems associated with homework*

There are many problems associated with home-work. There is the problem of getting students to have outside of class experiences that will support class learning and still not arouse their rebellion or stifle any interest they have in learning.

In recent years, teachers have begun to wonder about the desirability of assigning homework or whether it is worth the time and energy expended by both teachers and pupils. These doubts have been reinforced by the failure of research to demonstrate that homework is of any great value.

Another shortcoming is the failure of teaching to help children understand the purposes of assignments. Without such understanding, homework becomes merely another chore, autocratically imposed by adults, without rhyme or reason.

Many teachers use homework as a means of punishing the children. They assign homework as a disciplinary measure; they try to exact quantities of drill and meaningless busy work.

When teachers boast that they give four or five hours a day of homework, unfortunately, a good thing, is being carried too far.

Same types of assignment encourages copying.

Moreover, when excessive tension and pressure are associated with homework, it may affect mental health; conscientious students may become depressed and anxious.

A great many students do a poor to mediocre job because they fail to see, why the tasks assigned to them, are of much importance. Some students do their homework largely for negative reasons—to keep adults from nagging them about it. Only a small number of students do the work, more or less, willingly because they like or admire their teachers or are interested in the subject-matter.

Conflicts may arise between parents and children. Many parents use homework as a device to control the conduct of their children. Thus, the school becomes more or less a silent partner in a conspiracy to keep the child under control.

### *Objectives of homework and assignments*

Opinions and practices with respect to homework vary widely. Among the objectives of homestudy are:

(a) stimulation of initiative, independence, responsibility and self-direction;

(b) development of permanent leisure interests in learning;

(c) enrichment of school experience; and

(d) reinforcement of school learning by further practice and application.

### *The amount of homework*

Recently, *The Times* of London Educational Supplement, carried this extract from a mother's letter to a grammar school headmaster: "Once more a note to ask you to excuse Richard's unfinished homework but it has been dragged on all this evening from 5 P.M. to 9 P.M.

and I have now called it to a halt. I am not certain, whether he has not got the ability to assimilate or to applicate himself to the work but if he's not exhausted by it, I am. So please excuse him once again."

This is an eye opener for teachers. Too much homework is injurious in so many ways. "To set too much home work is to give pupils something they may neglect. And it is the worst possible thing, when something which a teacher wishes to be carried out, is not done. This risk should not be taken." Long hours of work are conducive to habits of dawdling.

What amount of homework should be given to children in school? There should be a sliding scale, as it were, for homework. Children below ten, in the primary school, should have no work of any academic character prescribed for performance at home. If they have been kept well at work at school for three or four hours, that should be enough normally. For the rest, let them play and carry on the hobbies. In the Middle school, for children of 11-13, about one to two hours' work might be considered adequate. In the High school, two to three hours should be regarded as the limit, the work increasing from year to year. Of course, much will depend on the nature of the work and its attractiveness. It must be added also that though trying to conform to a graded scheme may mean ignoring differences in capacity among pupils, it is still worthwhile to be able to consult some sort of a regulator.

### *Types of homework*

Homework may be regarded as a continuum: at one end are mechanical exercises required of all students; at the other end are creative projects or experiments undertaken voluntarily by individuals. While assigning work for homestudy, a few principles are suggested here for guidance in the choice of suitable tasks:

1. Homework should be of a type that pupils can undertake without assistance from parents or a private tutor. The teacher who expects pupils to secure assistance from parents or tutors is inviting trouble. It is necessary that the child is prepared for the type of problems that are set for home, although they may be challenging and stimulative. New laws, principles and generalizations should never be left for children to learn at home. Even the first applications of a newly encountered principle or method, is usually a source of considerable difficulty for the pupils and needs close attention of an instructor. So, most of the work would have to be deductive—the applications should be typical, foolproof, if possible. The opportunity of doing the work unaided and, yet successfully, will develop self-reliance and make possible greater confidence for the higher tasks.

2. Homework should be actually beneficial to mind and body, not simply an extension of the weary school hours, resulting only in

physical injury and mental disgust. Unmitigated grinding routine work such as transcription of pages of matter, cramming verses, neither understood nor appreciated, or "mugging" multiplication tables without realizing their significance, so often and so easily prescribed as homework, must not be prescribed. On the other hand, the spelling of new words, the writing out of lines studied, the memorizing of selections done in the class, the reading of passages containing familar vocabulary, are examples of the right type.

3. Homework should not always be in the form of writing as the only mode of expression. Diversification of work is essential if we want to keep homework from becoming synonymous with what is uninteresting, unintelligent, and unintelligible. Verbal expression must have a place in the system and weekly debate among the members of the class, is a useful way of promoting this. Homework may be given as revision of previous work and the preparation for a coming lesson. It may be in the form of problems that will challenge the pupils' powers and furnish motives for the work. It should be for individuality and self-teaching, not for examination cram.

4. Hobbies, if encouraged and properly guided, can prove absorbing homework. Given a fairly good library, any teacher should be able to fix types of valuable voluntary homework, which, if not of immediate examinability, must widen the pupil's outlook, deepen his interest, heighten his ideals and lengthen his hours of real intellectual life.

5. Homework should be used to enable a pupil to leave the school with the ability to use books as a means of gleaning knowledge. The actual study to be done at home should be planned to guide the children into an abiding interest in the recalling of such history, travel and literature as is contributing to lives of culture and refinement.

6. School can foster a taste for art, music and drama, and encourage its pupils to take advantage of the fuller opportunities for recreation. If this is done, and, if teachers in selecting the tasks for the evening and for the holidays, would look for those things into which the whole family might enter, it is likely that the family circle and its interests might begin to be built around the fascinating lessons of the school. In this way, home-life can be enriched and beautified. Homework, instead of being a nightmare, will become a blessing.

With these changes, homework will be done better, the amount will be reduced considerably and the character itself will be modified, becoming less formal, less boring and less discouraging. Homework will, thus, become interesting work begum at school and finished at home and, no longer a headache to pupils, parents, and teachers.

### *Teacher's diary*

Teacher's diary is a record of his daily work, his plan of work with the students, that he has already done and what he intends to do during a particular period. It also contains a brief outline of the year's syllabus of work to be done in each subject by a teacher; it contains a blueprint of his yearly work. Schedules of the syllabus to be covered termwise and monthwise are to be included in the teacher's diary. Weekly programme of the teachers, according to the school time table, should be noted in the school diary. Homework assigned must be entered in the diary.

A small portion, at the end of the diary, may be set apart for the special methods that a teacher adopts for the development of the weak and the intelligent students. Some pages of the diary must be set apart to write the names of the students he teaches class-wise. Their academic record may be briefly maintained. Again, special features of the class or individuals should be entered. Action taken, if any, should also be entered.

In short, teacher's diary is a sort of mirror to show the work done by the teacher and the students. It is a check to enable the teacher to measure the success of his educational activities. It can be very helpful in reminding him of his shortcomings and drawbacks. At the same time, students' brief record maintained by him, will enable to ensure him keen interest in their progress. The diary will the keep teacher on his track and achieve the aim.

The worth of a diary lies in the regularity with which it is maintained. It is, therefore, necessary that it should be filled up regularly.

The heads of the institutions should check the diaries and see what work is being done by the teacher in the class. They can give valuable guidance in helping the teachers help in pupils.

### *Written work*

Written work is essential for thorough learning. It is given to pupils right from the primary class. Written work, done by the pupils also speaks of their habits. Thus, it is very important that careful instruction and guidance is given by the teacher in this connection. Each subject teacher is to see that pupils write properly and keep a record of the written work. Of utmost importance is the proper and regular correction of the work assigned. Correction will also enable the pupils to know about the progress made. Obiviously pupils cannot make progress, if what they have done enthusiatically and laboriously is not carefully read and evaluated by the teacher.

Corrections should be done in the presence of the pupil and explained to him. Oral mistakes should be corrected on the spot and correct answer suggested. Mistakes committed in written work should be corrected with a coloured pencil. The teacher can indicate the mistakes with the use of signs familiar to the pupils. Individual mistakes should be explained to the child concerned while the common errors explained in the class.

Two types of corrections are generally done—correction of from, structure and style of writing or the subject-matter of writing. The method of correction may vary from subject to subject. For instance, whereas form structure and style of writing, are very important in language, they are not so important in mathematics. Also, various methods may be adopted by teachers for correction work. Some teachers correct each and every exercise book themselves. Some teachers adopt the monitorial system. They correct the exercise books of the monitor of the class and the monitor further checks the exercise books of other pupils. Some teachers make the pupils exchange their exercise books and the pupils check the exercise books according to the instructions given by the teacher or the monitor. Then, there is the self-checking system. Here the teacher gives the correct form on the blackboard and the pupils themselves correct the mistakes.

Whatever method is followed, the teacher should see that the correct form is fully grasped by the pupils and mistakes not repeated.

A variety of self regulating, self-acting and thinking machines are being used in educational institutions. Electronic and mechanical devices are helping the teachers and the pupil. A sophisticated instructional technology based on the existing knowledge of human behaviour is coming up. Institutions and services of a new kind intended to help people teach themselves—language laboratories, programmed computers and personalised teaching aids, audio-visual aids like radio, films, television etc., and new types of instructional organisations like team teaching are being integrated into educational systems. Not only that, photos, radio bulletins, news and line programmes are being relayed through satellites. The new multi-media has revolutionised teaching and learning. Students learn at their own pace, while the teacher is in a position to look after a large number of children.

### *Assignments*

Assignments are always a part of the daily lesson plan. Yet they are such an important form of short-range planning that they need special treatment.

Assignments help to give direction for learning. They facilitate transition from one lesson to another. They also affect student attitude towards learning.

Teachers ought to consider the following principles in making assignments :

1. *Assignments are a part of teaching, not external or introductory to learning*: The careful formulation of assignments is an indispensable part of planning and their evaluation rests upon the nature and quality of the learning which results.

2. *Assignments are related to purpose*: They are made and justified because they presumably contribute to the desired learning outcomes. So, assignments must not be simply calculated to keep pupils occupied. Instead, they must be pertinent to the goals of instruction. The teacher should help students understand the learning objectives and recognise the relationship of assignments to these objectives.

3. *Assignments provide orientation to the work*: They should tell the student what is to be done. They should not be like a miniature intelligence test from which the student is required to figure out what he is supposed to do. Unless the assignments orient the pupils to the task, they are likely to do the wrong things and strive for the wrong outcomes.

4. *Assignments should be designed to motivate pupil effort:* Students need good reasons for doing things. They need to see the pertinence of the assigned work to their concerns, problems and needs. It is very necessary that the teacher relates the assigned work to the pupils' present needs, when possible, or seeks to stimulate related interest.

5. *Assignments sometimes require special preparation of the pupils for the learning task, to ensure the success of the lesson:* The teacher may need to supply background information or to help students learn skill needed for the completion of the task. He should anticipate errors which might be made in the work and thus, make it more likely that the pupils learn correctly from the start.

6. *Good assignments challenge, not threaten:* Assignments should never be given by the teacher and received by the students as punishment. When the teacher says, "If you continue to make a noise today, I will assign you twenty problems instead of ten," he is using the assignment as a threat. This is hardly calculated to challenge pupils to work enthusiastically, or even to develop a favourable attitude towards the subject. The class-work becomes a punishment and the assignments a threat. Assignments can be challenging, if they are meaningful and promote student involvement.

7. *Assignment should provide for individnal differences:* As students vary greatly in interests, aptitudes and abilities, some provision for individual differences is desirable. A single assignment for completion, often is too difficult for some and too easy for others. So it is advisable to divide the class into sub-groups and provide appropriate assignments for the different groups. Differentiated assignments should be made, the quantity and quality of work expected for various grades may be indicated and the student allowed to choose and work towards the grade he wishes.

8. *Assignments should bc co-operatively made*: Both teacher and students ought to be actively involved. The student ultimately is

doing the work, not for the teacher's benefit, but for his own. Thus he should have an opportunity to contribute to the assignment he is supposed to work on.

9. *Assignments should stress clarity:* The student should be clear about what to do and when to submit the assignments. The teachers can increase clarity by using well selected examples and illustrations so that pupils will know exactly what is expected of then. The assignments can be duplicated to pass on to each student his own copy to prevent misunderstanding or mistakes in copying.

10. *Assignments should deal with work that is important and worthwhile:* Students quickly sense work that is not real, and made up to keep them busy.

Assignments should not be lightly given as the final bell sounds; they are a vital part of teaching and require serious consideration and thoughtful planning. If not well planned, they can seriously inhibit learning—if well-planned they can well promote learning.

*Library*

"The library is the intellectual nerve centre of a good school, the hub of its *academic life*." There is no denying the fact that library is one of the most useful, stimulating and potent *instruments of education in the school*. It is an indispensable instrument in the hands of a teacher who is intent upon adopting progressive methods of pupil participation. A good library can enrich the curriculum. The framework of a curriculum is not comprehensive enough to accommodate the diverse interests, tastes, aptitudes, etc. No one textbook can cater to this aspect.

A library is the essential channel by which the wisdom of the past can be brought to aid or to satisfy the needs of the present. "The great libraries of ancient and modern times should be looked upon as vast depositories of what man has wrought through thinking. Here are the stepping stones of man's advance from one level to another. Here, in the world's great libraries, one may live with minds, which though dead, yet speak and even rule. It is in the library that one taps sources of inspiration and aspiration. Libraries are shrines of immortality. Through them lives are re-born and re-directed. They are the treasure-vaults of ideas, the store-houses of knowledge and the flowing stream of living thoughts."

The school library is an educational apparatus of considerable value. Educational possibilities of libraries have long been realised in progressive countries. In the U.K. and U.S.A., libraries are usually well developed and are useful in the education of children.

The school library is now regarded as a live place humming with activity. It is a place where pupils go, not only for study but for enjoyment too. Work and play go side by side in a typical progressive school library.

But now the library is regarded as next to the teacher. It is looked upon as more than a mere collection of books housed in a classroom It has become the 'Intellectual Laboratory' of the school and is used constantly as such. In larger schools, a separate room is set aside for the library, well-equipped with books, magazines, newspapers, pictures etc. A qualified librarian is employed to extend its services to the pupils. The teachers appreciate that text-books are no longer 'Educational Bibles' to be used alone, but must be supplemented by other materials. The concept of warp and woof—the classroom and the library—both are integral parts of the educational fabric.

If a curriculum and text-book aim at providing the least common multiple of all students in a class, the library aims at, not only bringing out the individual differences but also to develop the special interests and aptitudes, to the pupils' best advantage. Civilization has progressed through specialisation, and specialisation depends on out-of-the-rut studies. Library habit creates the specialist.

The individual method of teaching where a pupil can work at his own pace has been much emphasized and appreciated recently. New educational methods are giving more importance to the "individual differences" of the pupils. Thus, library becomes a very important institution in such a scheme of education. To implement various progressive methods in education, a lot of experimentation and evaluation is called for. Library can thus become the intellectual nerve centre of activities.

Again, we are always emphasizing 'education for democracy.' This education for democracy needs 'democracy in education.' A little should be dictated by the teacher and more freely chosen by the pupil. Library is the agency for experimentation in this 'education for democracy' and 'democracy in education.'

Library is a great help in guidance programme. The nature of books a pupil selects for his reading, the degree of acquisition in different branches bring into bold relief, the different aptitudes and personality traits which an intelligent teacher cannot fail to discern. Moreover, the intelligent student will, himself, come to know of the different channels where his genius will carry him. It may be a process of self-discovery or self-guidance for vocation or further education.

Children need an environment of attractive books from the beginning and it is one of the duties of the school to see that this environment is provided. If a child's early experiences with books are pleasurable, a sound foundation is laid for their use in his future development, because "once the child has been taught to read and brought to love books, they are the main avenues by which he can explore...

Recently a great thought has been given to the part, a school library can play in the life of the school and the following conclusions have been arrived at:

(a) The library is a collection of 'background material' which can be drawn upon to enrich the work of the curriculum.

(b) It is a place where the use of books as sources of information may be taught and practised.

(c) It provides material to inspire and develop pupil's own interest and can be pursued outside the work of the school.

(d) It is a place where a variety of valuable responsibility may be exercised.

(e) The school library can play an important role in all aspects of education.

*Making library popular*

The following devices may be used by teachers to make the children library-minded:

1. The library should not be regarded simply as an additional class-room in which purely curricular activities are carried on. One of its most important objectives is to develop in a child a love of books and reading. This cannot be achieved by formal visit and it is, therefore, necessary to create a link between the child and the book which is personal and informal, which has nothing to do with school or organised education. This can only be done by encouraging the child to read for pleasure. The child might be encouraged for the pure love of reading; it must be remembered that children cannot be bribed to read. So the beginnings have to be made on lines which are attractive in the hope that they will later lead to the habit of reading more useful books.

2. Little children enjoy pictures and stories. Consequently, the approach to this age group has to be through well-illustrated books in which pictures tell half the story.

3. Brief comments, informal reading, and talks with individual children often help to create interest in books.

4. Before assigning any work to the child, we must determine whether necessary material is available in the library for reference.

5. Pupils can be given assignments which require them to do research work in the library.

6. Reading group can be organised, pupils may be asked to keep diaries of what they have read, not just titles, but synopsis of stories. They can be invited to give brief resumes of the books they

have read, or to suggest titles of subjects which should be added to the library.

7. Private reading for pleasure is really more important than set reading to gain class placings or the teacher's praise. The school library must provide all the books which the child needs. Home lending service is as important as the supply of books for study.

8. The library should be available for reading and for borrowing as much as possible out of school hours.

9. The headmaster and the teacher should keep their fingers on the pulse of their students' general reading. Proper records of the books read by the pupils should be kept. Where ordinary issue registers, rather than issue cards, are maintained, each student must be allotted a few pages of the register in which all books studied by him are entered date-wise. Through this the class teachers and headmaster can see at a glance, what each individual has been reading and give him necessary advice and encouragement.

10. In school, a bulletin board can be used. Beautiful pictures, cuttings of reviews, can be displayed on it. This can also create interest for reading.

11. Completed projects prepared by pupils can be exhibited in the library.

12. Provision can be made in the time table of every school from the primary to the secondary classes to have at least two periods in the week for library reading. During this period, the class teacher may take the pupils to the library and distribute to them the books which they would like to read; the class teachers and the librarian should guide them; more direct encouragement and practical demonstration of the use and possibilities of books are necessary.

13. Many opportunities should be provided to children to have a free and frank discussion with the teacher about the books.

14. The teacher's use of the library often sets an example to pupils.

15. Interesting books may be exhibited on the desks. The teachers should keep in touch with new books which pupils may enjoy reading and suggest for addition in the library.

16. Birthdays of great men and days of national importance may be observed and the students urged to write articles and draw illustrations for these occasions. These may be displayed on bulletin boards or on wall magazines.

17. The teacher may tell the beginning or end of the story and ask the pupils so find out the rest of the story. The pupils will, surely, read the book to complete the story.

18. Book competitions can prove very helpful in stimulating

children to read. Questions on titles, authors and subject matter, can be set. This will make the pupils anxious to improve their knowledge of books.

19. The pupils may be encouraged to start class magazines. This will require them to go to the library seeking help on different subjects.

20. Honour roll lists of the books read by pupils can be kept. When the pupils are rewarded for reading books, they will surely like to read. Certificates of various types can be awarded.

21. At the top of all these suggestions, library must be made the most attractive place in the school. The students must not be *driven* but *drawn* to the library. In every part of the library service—selection of books, organisation, decoration of the library—the full co-operation of the students should be obtained, in order to give them the feeling that it is their *own* library.

22. The school library should be the central source of curricular material both for pupils and teachers. For adequate results, therefore, it is necessary that library *parallels curriculum development*. The library must keep abreast of current material and have greater potential strength. A good library should add impetus to curriculum revision, for the materials housed there suggest new units, supply new applications and new knowledge, for guidance in the selection of the books.

Library is a very important agency of education. Uptil-now, it has not been given the importance it deserves in our schools. Let us hope and trust that in the progressive schools of modern India, the significance and worth of library service will be realized in all its fullness.

### *Museum*

Museum—the temple of the Muse—as the word implies, is intended to be a place for study. Since ages, the museum was concieved as the reference file of real objects by which to verify and amplify knowledge acquired and preserved in other forms. It is a place where one learns by seeing articles of interests. It is also a centre of recreation, where one learns pleasantly, but principally one enjoys seeing beautiful and strange things.

Instruction by museum is becoming increasingly popular in all progressive countries. Their collections are being more and more utilized for mass education. It is being generally recognised that museums, especially those which cater for historical and cultural objects, imparts wholesome education at all levels. The museums which contain collections of national archaeology, history, traditions and culture, interpret national heritage for the public as well as preseve it for scholarship. Such museums impart education to general public and function as instruments of teaching on as wide a scale as possible.

Museums have been aptly described as symbols of culture and knowledge dedicated to the service of the people. "For the scholar they represent repositories of the objects for study and research; for the educationist and the teacher they are a store-house of concrete and vivid adjuncts which lend colour and reality to all forms of teaching; for the child, the spark which can ignite wonder and curiosity; for the ordinary citizen, they are a source of pleasure, delight and knowledge."

A museum, as a repository of objects of historical and cultural significance, can develop a full understanding and appreciation of the social, historical and cultural background of the region in particular and the country in general.

A museum is a very important device for teaching. Children may visit the museums. Loans of graphic materials and origional works of art or specimens, may be obtained from the museum authorities and the teaching of various subjects made vivid and interesting. Student classes may be organised in museums and galleries. Thus, national museums may be effectively exploited for fostering education on national and historical lines.

A museum can also be had in the school. It should be a place which may mirror the life of the school. The material in the school museum may represent the flora and fauna of the locality, the geography and history of the province, the art and paintings of young artists and the cultural traditions etc., of the locality in which the school is situated. As a valuable adjunct to the school, the museum can be a supplement to classroom teaching, by way of providing correctly specific background in historical and geograpical context of the community. Various discoveries of science, technology can be shown through specimens and models placed in the museum.

Every school can have a museum without any difficulty. It is well known that children like to collect and that many of them have collections of their own. If it is appropriately suggested to them, they will doubtless react more favourably towards the idea of a school museum and co-operate most enthusiastically in developing it. Such a project is intriguing and it is educative. It requires no extrinsic motivation. Planning, accepting, and discharging individual responsibility, doing the necessary research in obtaining, understanding, classifying, mounting and labelling exhibits and working together for the common good, certainly mean educational benefits for all pupils concerned. Such a project is not very difficult It can capitalize on almost any kind of collecting interes, thus guaranteeing variety in the final exhibits. It is also readily possible because objects, specimens and materials are easy to obtain and inexpensive tp mount and display. "No environment is so poor as to afford no materials of such value, and none so rich as to require no supplementation."

A great proportion of the work should be immediately functional, that is, directly relatated to regular classroom activities rather than an end in itself. Making a relief map, a natural habitat or a picture scrapbook, or collecting minerals, leaves, nests, etc., will bring a nature approach to the subject under consideration, motivate the necessary research, and when completed, will represent a neatly tied up summary of the unit.

The modern museum stands as an aggressive force in education. It can supplement classwork in a wonderful way.

### *Evaluation*

The teacher, working scientifically, asks himself the following questions:

1. What is worth learning (or teaching)?
2. How best to learn it (or teach it)?
3. How well has it been learnt (or taught)?

Learning, in fact, requires continuous evaluation and evaluation is a helpful device for the teacher as through this he becomes constantly aware of the varying factors that affect his instruction. Evaluation provides the measure of success. It identifies defects and failures; it indicates possible changes in policy and action. It reveals the value of methods, procedures, techniques, materials and equipment being used and where they should be improved and supplemented.

Further, there exists an inter-relatedness between objectives (ends), learning experiences (means) and evaluation (evidence). Objectives remain central to both learning experience and evaluation. Evaluation comes in at the planning stage when objectives are identified. Learning experiences are also planned in terms of objectives. At every point of learning, evaluation is an attempt to discover the extent of effectiveness of a learning situation in evoking the desired changes in students. Thus, syllabus, text-books, teachers and organisation of classes are concerned with *what should* be learnt by students; evaluation is concerned with what *has been* learnt.

Evaluation is useful from the point of view of students because it points out their strong and weak points; it can provide them guidance —educational and vocational.

A variety of devices and techniques should be used in the evaluation programme. The appraisal devices should include records of activities in which pupils participated, questionnaires, check-lists, anecdotal records, interviews, reports made by parents etc. Merely to give the results of standardized tests, written examinations or subjective opinions of teachers, is no longer sufficient in a modern programme of evaluation. The selection of a technique or techniques of evaluation, depends primarily on the nature of the objective to be appraised. Each objective implies several behavioural changes. It is obvious, therefore, that no single yardstick can suitably record the different types of changes. Each behaviour may need a different kind of device. Therefore, we may have to use as many different devices as possible to seek and record evidence of change and ensure that each device, we use, is the most suitable one for securing evidence on a particular change. Objectives such as acquisition of knowledge, application of knowledge, critical thinking, comprehension and and expression can be conveniently tested by means of written and oral tests. Practical tests will be useful in assessing pupil achievement relative to certain experimental and constructional skills. Objectives of interests, attitudes and apreciation are rather difficult to assess with a high degree of confidence; hence a number of techniques such as inventories, check-lists, rating scales, interviews, observation, socio-metric devices, role-playing, anecdotal recording and reporting are used. We may, at times, adopt more than one technique simultaneously to assess pupil progress in relation to the rather intangible objectives.

The teacher can test acquisition of knowledge, application of knowledge, critical thinking, comprehnsion and expression by means of oral tests, paper and pencil tests—essay type and objective type.

The qualitative aspects of verbal expression of thought can be judged by essay type of test. A thorough and precise explanation of the mind of a particular child is the central purpose of objective type tests. Such tests are administered in a short time; there is no possibility of difference of opinion among examiners as to whether responses are to be scored right or wrong. A variety of objective type items are used to evaluate the achievement of the students.

1 *Completion test*: The objective in setting a completion test is to test pupils' information on matters of general interest. Questions involve only the filling in of a proper name, date or quality. It tests faculty of recall.

*Examples:*

(i) The first nuclear explosion of India was conducted on: (a) 20th June, 1944 (b) 19th April, 1975 (c) 19th July, 1974 (d) 15th August, 1970 (e) 10th September, 1959.

(ii) George Washington was elected the first President of the U.S.A. in:

(a) 1801, (b) 1719, (c) 1789, (d) 1800, (e) 1900.

2. *True-false or yes-no:* In the test, a number of statements are given and the pupil is required to write T and F or Y and N against them.

*Examples:*

(i) The largest planet is Saturn.
(ii) The smallest planet is Earth.
(iii) The largest island in the world is Taiwan.
(iv) The largest ocean in the world is the Pacific Ocean.

These tests are extremely poor testing devices. So it is advisable to avoid them as far as possible. If some of these are made, the teacher must ensure that he has made an absolutely false statement.

3. *Multiple-choice type:* This is the best testing instrument for most objectives which can be measured with paper and pencil. It gives the highest amount of validity and reliability, is easy to score and yields results that are easy to analyse. In this test, importance is given to recognition knowledge rather than recall. It is very useful both in assessing the understanding of concepts and in testing their factual knowledge.

*Instruction*: Put an x inside the answer box given against the correct answer.

*Example*:

(i) A photon is
  (a) a quantum of light energy ☐
  (b) a quantum of matter ☐
  (c) a positively charged particle ☐
  (d) an instrument for measuring light. ☐
(ii) Mendel is famous for
  (a) laws of heredity ☐
  (b) discovery of penicillin ☐
  (c) mutation theory ☐
  (d) discovery of gene. ☐

4. *Matching form:* It consists of two lists, a list of premises and a list of responses. The two lists have to be matched according to the directions given.

*Example 1*

List A gives causes, list B gives effects. Match list A with list B:

| *List A* | *List B* |
|---|---|
| 1. Lord Dalhousie | a. Parliament of Bengal. |
| 2. Lord Ripon | b. Local self-government. |
| 3. Lord Curzon | c. Abolition of suttee. |
| 4. Lord Bentinck | d. Doctrine of Lapse. |

*Example 2*

Match the following:

1. Vedanthangal
2. Hirakud
3. Khetri
4. Tarapur
5. Aravallis
6. Jog
7. Bokaro
8. Ankleshwar
9. Tuticorin
10. Ahmedabad

a. Atomic power station
b. Major port
c. Iron and steel industry
d. Textile industry
e. Bird sanctuary
f. Dam
g. Waterfalls
h. Copper mine
i. Important railway junction
j. Old mountains
k. Oilfields
l. Coalfield

When constructing matching items, we should keep in mind the following:

(a) the lists of stimuli and responses should be as homogenous as possible.

(b) the lists should be kept relatively short, no more than 10 or 12 in a list.

(c) The number of items in the response list should exceed the number in the stimuli list to cut down on guessing.

(d) The basis on which the matching is done should be stated in the directions.

5. *Arrangement type*: Some items are given to be arranged chronologically, according to size, location or importance.

*Example:*

Arrange the following events in chronological order:

(i) First Sikh war
(ii) First Afghan war
(iii) First Burmese war
(iv) Third Maratha war

6. *Definition:* Knowledge of definitions can be tested in two ways. Either straight-away ask the definitions or give three or four definitions and the pupils select the correct one.

*Examples:*

(i) Definejezia, electorate, vote.

(ii) Which is the correct definition of democracy?
  (a) It is a government by the nobles.
  (b) It is a government by the dictators.
  (c) It means president's rule.
  (d) It is a government of the people, by the people, and for the people.

7. *Relationship test*: This test may take two forms—relationship between two items, e.g., crop and rain, crops and soil, etc., may be asked or an event given and the pupil asked to give its place and year.

*Example*:

For each event below, give place and year with which you associate it:

| *Event* | *Place* | *Year* |
|---|---|---|
| 1. Birth of Lord Buddha | ... | ... |
| 2. Founding of the U.N.O. | ... | ... |
| 3. Permanent Settlement of Bengal | ... | ... |
| 4. Hazrat Mohammad's birth | ... | ... |
| 5. Shivaji's birth | ... | ... |
| 6. Akbar's accession | ... | ... |

8. *Classification test:* Some items are mentioned and the children are asked to classify them according to categories.

*Examples*:

In the groups of given words underline the words which do not belong to the same category:

(i) India, Japan, Burma, Mount Everest, U.S.A.
(ii) Premchand, Tulsidas, Rabindranath Tagore, Jawaharlal Nehru.

9. *Recall or question and answer type*: A question is asked to which simple and short answers have to be given.

*Examples:*

(i) Which Mughal Emperor was fond of art and architecture?
(ii) Who was the brave and beautiful Rajput queen who burnt herself?

*Recognition form*

*Chemistry*: Tick off which is correct

1. Colour of oxygen gas is

(a) pale blue
(b) colourless
(c) yellow

2. Carbon-dioxide
(a) is odeurless
(b) gives purgent smell
(c) smells of rotten eggs

These new type of tests are useful in a number of ways:

(1) Provide extensive sampling.
(2) Scoring is objective.
(3) Take less time in answering as well as scoring.
(4) Are valid and reliable.
(5) Are easy to administer.

But these tests are, by no means, a panacea for ills connected with education. They represent one line of reform in the whole scheme of educational reconstruction. So, there is no question of either the essay type tests or objective type tests. We should, as far as possible, try to combine the two and derive the maximum advantages from both.

Not only that. A single number or grade cannot describe the many dimensions of a child's growth. Qualitative ends cannot be judged with quantitative means. Understanding, skills, attitudes and appreciation cannot come in a single category. So, in addition to more conventional tests, exercises and recitations, we should use informal conversation with children, observation of their behaviour, discussion in large and small groups, and other less structured procedures

At the top of all these, pupils' progress reports and cumulative records should be well maintained in the schools. How well they are maintained, will determine how effective our examination system is and consequently how efficient our educational programme. Records will yield generous dividends.

Proper records should be maintained for every pupil indicating the work done by him in the school from day to day, month to month, term to term and year to year. Diaries of pupils, anecdotal and cumulative records maintained by teachers are very good evaluation devices.

*Cumulative records*

The cumulative record is a systematic accumulation of significant factual information about an individual which when progressively developed and maintained over a sufficient period of time, gives a summarized "growth record" indicating the direction and rate of development. It shifts the emphasis from a one time or once a year performance in a few academic subjects to the full development in practically all the important aspects of education and general, physical, social and mental development over a longer period of time.

The nature of the data provided for in the cumulative record depends upon the individual school system. The record should co-ordinate all the personal activities carried on by the school staff, and at the same time, present a picture of the pupils' growth and development. The cumulative record should contain:

1. Personal data and school background
2. Family background
3. Health information
4. Co-curricular activities
5. Scholastic record
6. Personality traits
7. Educational and vocational plans
8. Supplementary information by use of standardized tests
9. Headmaster's overall remarks.

The cumulative record is started for each child at the time of his entrance to school and is to be transferred as the child progresses from lower to higher school or moves to another school. The record card should be so planned that there is a minimum of clerical work. They should show the current status of the student in different areas of growth and disclose developmental trends by showing his status in these areas at different times in the past. They should give both a clear cross-sectional and a clear longitudinal view of the student.

The cumulative records can prove very useful to the teacher. He will become an experimenter with human development and find the maintenance of the cards not a burden or a load, but a process of making his work more meaningful to himself and more useful to the pupils.

### Summary

1. In order to achieve the purpose of causing, facilitating, and promoting learning, certain tricks commonly styled as devices of teaching are necessary.
2. There are two types of devices—artificial and natural. The artificial devices may be such as oral communication through narration, exposition, explanation etc. The natural devices are those where learning is a by-product of direct experiences.

3. The teacher can use both *artificial and natural devices*—as narration, description, explanation, questioning, answering, illustrations, text-book, homework, teacher's daily written work, library and museum etc., to get the best of results.

## Questions and Problems

1. What do you understand by *'Devices of Teaching*?' What useful purpose do they serve in teaching and learning?
2. What do you understand by natural and artificial devices of teaching?
3. What is the difference between narration, description and explanation? Give concerete examples to show effective use of each of these devices.
4. Questioning is a tool in the hands of a teacher to be used for making his teaching effective. What are the main characteristics of a good question?
5. What is the main function of questioning in the class? Why is lesson without it ineffective?
6. "The art of questioning is the very soul of teaching." Comment.
7. "The acquisition of good style of questioning may be laid down definitely as one of the essential ambitions of a young teacher." Examine the statement bringing out clearly the essentials of good questioning.
8. "Frivolous, impertinent or thoughtless questions from the students should meet with the appropriate treatment which they deserve." Illustrate the point from your personal experience.
9. "Greater efficiency in managing the questioning, during socialized class period, is secured by adherence to certain well-defined rules of standards." What are these standards? What are the points that should be kept in mind in connection with pupil's responses to questions?
10. How would you deal with the following situations in the classroom? Indicate the principles underlying your answer:
    (a) A barrage of questions comes from the class.
    (b) A pupil asks you a question which you cannot readily answer.
    (c) A pupil questioning the correctness of your statement.
    (d) A back-bencher says he has not heard your question.

11. "Pupil's answers to the questions are more important than the questions of the teacher in teaching-learning process." How far do you agree with this statement? What should be the teacher's attitude to pupil's answers?

12. Questioning is a difficult art and one worth working for: it is of great value to the teacher. What are the characteristics of good questions? Is questioning a one-way traffic—that is the teacher questioning the pupils always, or is there place for the pupils to question the teacher?

13. Write notes on the following:
    (a) Value of exposition and illustrations in teaching,
    (b) Assignments and appraisal of homework.
    (c) Choice of suitable text-books.
    (d) Use of library as a device of teaching.

14. "Illustrations are good servants but bad masters." Comment upon this.

15. Discuss the word "illustration" as it is technically used in educational literature. What are the purposes of the use of verbal illustrations in teaching? What rules or standards must be observed for the effective use of symbols?

16. "The inevitable reaction towards the beginning of the 20th century deposed the text-book from its place of power. The teacher was called upon to do his own teaching, to supply his own material, to get along with a text-book that was merely an aid, not an authority." Comment briefly on this statement and state clearly how it applies to Indian schools.

17. "Though life is the general educator, it needs books and instruction to interpret and illumine our experiences for us." Comment upon this statement.

18. Give the essentials of a good text-book.

19. Discuss the reasons for and against giving homework to the pupils.

20. Suggest the amount and type of home-work which may be given to secondary school students.

21. What is the importance of a school library? What special use would you make of the library in the work and recreation of your students?

22. How would you make the library popular in the school?

23. Many exercises are written by the pupils in a certain class and the teachers are expected to correct them. What is

your idea concerning the above and what method would you follow so that the pupils may profit by these exercises?

24. Give the importance of teacher's diary.

25. How will you face the following classroom problems?

    (a) Several pupils speaking simultaneously in reply to a question. (b) Back-benchers standing up to look at the picture being shown by you. (c) Some pupils feeling shy to answer your questions. (d) Some pupils asking many questions at the end of the lesson.

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# 8

# FIXING DEVICES

*Importance of fixing devices for effective learning—Various fixing devices—Summary Questions and problems—Bibliography.*

## Importance of fixing devices for effective learning

One repetition, correctly understood, may be sufficient for understanding but one repetition is hardly adequate for the response to occur certainly, quickly and accurately. Hence, the importance of using devices which will fix the impressions on the minds of pupils to ensure permanent and effective learning. The purpose of using fixing devices in teaching is to remove the vagueness and 'newness' of the knowledge imparted and improve pupils' grasp and strengthen their hold on the subject-matter taught. Forgetting is a common bane of learning. This can be virtually eliminated if the teacher provides for continued use of ideas. No learning can take place until the knowledge imparted is thoroughly understood and fixed. There lies the justification of the saying of the Jesuit teachers who proclaimed in their manuals: "Repeat, repeat, and repeat." No teacher can afford to ignore these fixing devices in teaching.

## Various fixing devices

There are four main devices which can be used for fixing the impressions on the minds of pupils—*drill, review, asking questions, describing outstanding problems.*

### *Drill*

Drill is one of the most commonly used devices for achieving permanent results in learning. Repetition of an experience fixes the impressions on the minds of the pupils. "Practice makes perfect" implies the importance of repetition in bringing certain habits up to a point where there is little chance of forgetting. Drill or practice is an essential part of all learning situations. Pupils need practice in fixing an idea in their minds and in everlearning a generalization, a principle, or a fundamental. "Drill," in the words of Yoakam and Simpson, "is a serious activity which has for its purpose the perfection of a skill or the strengthening of association to make them more permament."

Drill allows pupils opportunities to develop meaning, control over simple processes, and mastery of principles or fundamentals which require right recognition. This enables pupils to proceed to more advanced learnings without impairing their efficiency.

Ordinarily when we think of learning, we are thinking of habit formation through practice and repetition. Human beings have a natural disposition to exercise their new capacities—that is to drill. Any one, who has tried to care for a child during his first steps, knows how true this is Again, consider the alphabet. As children we chanted the alphabet, recited it, and used it a thousand ways in school work. When the alphabet is called for, it is on the tip of our tongues, for it has been "overlearned." Overlearning results when a person continues to use a response repeatedly, with confirmation.

Drill is useful because of various other reasons too. It does not involve only repetition but is always accompanied by intensity or by satisfaction. That helps in proper learning. Drill without reinforcement, in the opinion of Hull, simply builds up inhibitions against repetition. Only if there is reinforcement does repetition strengthen the possibility of a response recuring.

To the Gestaltists, repetition is merely an opportunity for the formation of new patterns or structures. Kohler's chimpanzee made a mental pattern (Gestalt) of the box and the banana thus changing his cognitive structure.

Automatic recall is usually the goal of drill or practice. It is more effective when complete understanding of the material is developed prior to the practice and the pupil sees the need for the drill.

*The old and the new idea of drill*: The old idea of drill was that one should practise the same response until it became completely mechanical. Over and over again the student faced essentially the same stimulus and made the same response, preferably with no pause to analyse or consider the unique features of the situation. Drill was used to fix an idea or a fact without regard for the meaning behind the learning. It was even suggested that all arithmetic problems requiring a given operation --say subtracting cost price from selling price—be worded in the same way so that the student will never puzzle over what operations to use.

In the present day school situation, drill becomes practice of a meaningful idea or fact. Pupils will seldom be assigned drill on fundamentals or other material without first understanding their meaning. As a result, drill becomes a practice of meaningful learnings, so that they may be immediately available to the learner in a new situation.

The modern view is that the student should practice in the greatest variety of situations he can cope with. This requires him to isolate the essential elements. Learning becomes not forming one mechanical reaction but aquiring familiarity with a type of situation in all its guises. No one recommends helter-skelter variation that leaves the learner continuously off balance. He should attain a reasonable degree of success with one situation before going on to another variation. It is often beneficial to alter one element of the situation at a time to gradually extend skill. Mere adaptive training leads to much greater skill in dealing with new situations.

*Cautions in using drill*

1. Whenever drill is needed in order to make for more effective learning, it should be a learning-teaching device used for the development of meaning, control over simple processes, and mastery of fundamentals.
2. When drill is provided to develop meaning, it should increase understanding. For example, when a child is assigned drill on finding the area of a rectangle, several problems of this nature should be used to help him understand what area is, how the formula for finding area can be applied to the problems assigned, and how the total learning from the situation can be applied to new experiences.
3. Nothing good can be built into human personality by forced drill because all human activity is directed to the attainment of its own goals. Make the pupils understand the goal for which drill is necessary.
4. Drill should only be used for the purpose of making automatic responses or reactions and should be applied only to the learning of materials that lend to automatisation.
5. The material, to be drilled upon, should be meaningful.
6. Exercises, given for drill, should be interesting and pleasant.
7. Drill exercises should be short and distributed over a period of time.
8. Drill is an individual affair. Students should be encouraged from time to time as progress is made by them. Success should be possible for all and the progress made known to the pupils.
9. The child put on drill exercises, should be fully oriented both in the method and the content of drill performance.
10. Drill should be varied and interesting.
11. It should result in economy of time.
12. It should not only develop knowledge and skills but help maintain good habits when they are established.
13. As the drill work is fatiguing, the drill periods must be short,

in the initial stages. The length of the periods may be increased as the proficiency and interest are gained.

14. Instead of repeating the process continuously, repeating at judicious intervals, can prove more useful.
15. For drill and repetition, absolute accuracy should be insisted upon, as wrong practice is worse than no practice at all. To achieve this objective, it will be advisable if an excellent model is presented to the pupil by the teacher.
16. Flash cards may be used for aiding in the drill of fundamental arithmetic facts, for example, and they can also be used for the development of sight recognition of reading vocabulary after the original skills have been applied in word recognition.

In every subject of the school curriculum, there are certain parts or topics which demand drill work in order that they are learnt well. Exercises in mathematics, reading, handwriting, spelling in language, map work in geography and history etc., afford enough scope for drill work.

### *Review*

Review or revision is a very old device used by all teachers for effective and permanent learning. Review or *view again* is not a mere repetition of what has baen learned or experienced, it gives a retrospective view of that. It is concerned with new experiences and with the establishment of new associations, the development of new skills, or the solving of new problems, in addition to the mastery of facts and skills. To quote Bossing, "The term review connotes not a mere repetition of facts to fix them more firmly in mind, but rather a *new view of these facts in a different setting that results in new understandings*, changed attitudes or different behaviour patterns." Risk says, "Getting a new view or renewal of an old view is to assure a better view or grasp of relationships studied." An analysis of these ideas will show that in review, we work upon the whole material from a different angle or point of view. We may make a summary or an outline of the same content. We review to achieve the following purposes:

(i) To restate and organise the facts and relationships in order to fix them.

(ii) To help students organise the materials and experiences into larger units.

(iii) To enable the pupils to get a broader perspective of what is being studied and of the subject-matter field as a whole.

(iv) To reveal weakness in the teaching-learning process.

*Types of Reviews*:

(i) The daily lesson review.
(ii) Topical review.
(iii) Unit plan review.
(iv) Co-operative review.
(v) Review by application.

*The daily lesson review*: In this review, teachers can review what has already been covered on the subject at the beginning of the period. This can be done by summarizing the previous lesson and relating it to the lesson in hand.

*Topical review*: This implies the review of the topic already covered. For instance, after various lessons on the Guptas in the Ancient History of India, a couple of periods could be devoted to the review of the whole of the Gupta period. Another form of review will be after dealing with all the aspects of Gupta period, a form of review of the period may be taken in the form of 'life under the Guptas.' Again, after a topic in history has been taught on the basis of chronological method, it could be taken over again or reviewed on the basis of the problem approach. Such an approach will result in the development of new understandings and a clearer view of the problem studied.

*Co-operative review*: This type of review involves both the teacher and the taught. It can be in the form of discussion—a form of mass participation resulting in an interchange of ideas under the guidance of the teacher. This type of review is more suited to the higher classes.

*Review by application:* In this type of review, the pupils may be asked to apply the knowledge gained to new situations so that the principles learnt become more clear.

*Review by making diagrams, sketches, charts, models, etc.*

The teacher may use the blackboard for this purpose and draw diagrams, sketches or tables etc., to give the salient points of the lesson in an interesting manner. Similarly, when facts are explained in terms of charts and models, they are fixed in the memory of the child.

*Suggestions for making review effective*:

1. See that every review involves some new learning.
2. Review should be directed, to some extent, to the places where the pupils are weak and the facts are important.
3. Review should be used to establish coherence and continuity between parts of the course.
4. Review may be used partly as a process of checking and verification.

5. For the purpose of review, the matter taught may be summarised, outlines of the course may be made and problems may be solved out of that matter.
6. Those review methods should be employed which involve 'visualisation'.
7. Review should be done both at short and long intervals.
8. The chapter exercises in the text-books may be used for reviewing.
9. Summaries of chapters and parts of books may be studied for the purpose of reviewing.

### *Drill and review compared*

Drill and review both are fixing devices but there is much difference in aims, methods, purpose achieved between the two devices. In drill, the aim is delopment of skill; in review, the aim is longer retention and greater thoroughness. As far as method is concerned, drill requires exact repetition but in review old knowledge is presented from a new point of view. Again, in drill every detail is recalled, but in review only the salient points are recapitulated. In drill, mechanical association and, therefore, memorisation is insisted; in review logical association, i.e., thinking power is stressed. Drill is uninteresting; review is interesting.

### *Asking questions*

Questioning is one of the most importent fixing devices in addition to its being an important teaching device. One of the purposes of questioning is to review the lesson to fix the matter clearly in the mind of the child. There are three stages when questions are asked by the teacher—at the introduction stage, after finishing each section of the lesson, at the final recapitulation stage. Properly put and adequately-worded questions help in illuminating the darkness and fix the facts in the memory of the child. Questions, asked by the pupils, can help in filling the gaps and clear the misunderstanding in their information. Some students are very intelligent. They ask the questions which can stimulate the whole group or bring out issues which need thorough treatment. Thus, questions asked by the students are very useful for the purpose of review. To achieve the best results the students should be given ample opportunities to ask questions.

### *Describing outstanding problems*

This reviewing device is particularly useful in the higher secondary classes as the pupils at this age are full of curiosity; their desire for further knowledge is great and their interests are widening. It will be very useful, if certain outstanding problems, are explained to them.

Pupils should be given to understand that human knowledge is very vast; there are many regions yet to be explored and, its expansion is a stimulus to our will-power and brains. It is essential that young students are explained the major problems to expand their imaginations, and minor problems, to test their ingenuity. Outstanding problems connected with various subjects, bringing them face to face with the hard realities of life should be brought out before them. These will heighten their interests in the subjects and thus fix the facts in their memory.

### Summary

Fixing devices are important for good learning. There are various fixing devices—drill, review, questioning, and describing outstanding problems etc. They remove the vagueness and "newness" of the knowledge imparted and improve pupils' grasp and strengthen their hold on the subject-matter taught. No teacher can afford to ignore these fixing devices in teaching.

### Questions and Problems

1. What do you mean by fixing devices? Name two such devices and explain in detail their purpose and methods of use.
2. What is the value of drill in teaching? How will you plan it to achieve its aims?
3. The teacher requires each VI class student to write 50 times each word misspelt from the day's assignment. Is this a sound procedure?
4. "Practice makes perfect." Discuss the meaning and functions of drill in this connection.
5. "The review connotes not a mere repetition of facts to fix them more firmly in mind, but rather a new view of these facts in a different setting that results in new understandings, changed attitudes, or different behaviour patterns." Critically examine the statement.
6. "The modern concept of 'Review' is to make it a new, deeper, and broader overview." Explain this statement. How should a teacher plan 'review' effectively in the teaching?
7. Differentiate between *drill* and *review*.
8. Describe in some detail the process of fixation. What are the factors involved? Emphasise the relation between meaning and relation.

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# 9

# AUDIO-VISUAL AIDS

*The value of audio-visual aids to learning. What audio-visual aids are not? What is an instructional aid? Types of audio-visual aids. Some important aids—School journeys—Demonstrations—Objects and specimens—Models —Diagrams—Charts— Graphs—Maps— Globes—Pictures—Slides—Film strips—Radio films and television—the Gramophone—Tape recordings—Newspaper—Reference books—Dramatization—The chalkboard—The bulletin board—The Flannel board or felt board—Summary—Questions and Problems—Bibliography.*

"The foundation of all learning, consists in representing clearly to the senses, sensible objects so that they can be appreciated easily." Comenius.

An outstanding development in modern education is the increased use of supplementary devices by which the teacher through the use of more than one sensory channel helps to clarify, establish and correlate accuracy, concepts, interpretations and appreciations; increases knowledge; rouses interest and even evokes worthy emotions and enriches the imagination of children.

As discussed earlier, learning takes place at three levels—direct experiencing, vicarious experiencing and symbolic experiencing. Thus, audio-visual materials are quite helpful in instruction. They supply a concrete basis for conceptual thinking; they give rise to meaningful concepts to words enriched by meaningful associations. Researchers have also recommended that in education we should appeal to the mind chiefly through the visual and auditory sense organs, since it is possible that 85 per cent of our learning is absorbed through these.

## The value of audio-visual aids to learning

(*i*) *Audio-visual aids are potent starters and motivators:* When the child finds learning made easy, interesting and joyful with the help of sensory aids he feels motivated. He cannot but attend to an interesting procedure going on before him. Direct, concrete, contrived, dramatized experiences add zest, interest and vitality to any trainir situation. As a result, they enable students to learn faster, remembeg longer, gain more accurate information and receive and understand delicate concepts and meanings. Thus, learning becomes meaningful, enjoyable and effective.

(ii) *Audio-visual aids give variety to classroom techniques:* They generally represent a rest from the traditional activities of the school. When using them, the child is experiencing something different. Variety is always attractive to the child as well as to the adult. *Audio-visual aids provide a change in the atmosphere of the classroom.* They allow some freedom from the formal instruction of the traditional type. While using sensory aids, the pupils may move about, talk, laugh, question, comment upon, and in other ways act in a natural manner as they do outside the classroom. The attitude of the teacher is also very friendly and co-operative. In this way, school work is motivated when pupils work because they want to and not because the teacher wants them to do.

(iii) *Many of the aids provide the child with opportunities to handle and manipulate:* An opportunity to touch, feel, handle or operate a model, specimen, picture, map; press a button or turn a crank gives an added appeal because it satisfies, temporarily at least, the natural desire for mastery and ownership.

(iv) *Audio-visual aids supply the context for sound and skilful generalizing*: Books lack the specificity, the warmth, indeed some of the unutterable poignancy of concrete experiences. Through direct, purposeful, first-hand-experiences and semiconcrete audio-visual experiences, we can supply the context for sound and skilful generalizing.

(v) *Audio-visual aids educate children for life in this modern complex world:* There was a time when life was very simple—children learnt through direct experiences the rudiments of knowledge. But ours is a complex world. We live in a pushbutton age when comfort has a terrific appeal, but there is no easy road to learning. There is no magic osmosis; effective learning is still the old fashioned formula of nine-tenth perspiration and one-tenth inspiration. Naturally, therefore, more must be done to determine how teaching is accomplished easily and speedily. More is the need to-day than before.

(vi) *Audio-visual aids can play a major role in promoting international understanding*: These aids can bring about mutual understanding and appreciation of cultural values and ways of living among the different nations of the world. Enlightened and sympathetic attitudes can be developed among the school children through this media. Films and radio programmes can be exchanged among the different countries. Coloured slides on works of art of different countries lead to mutual appreciation of eastern and western cultural values.

To conclude in the words of Mckown and Roberts, "Audio-visual aids, wisely selected and intelligently used, arouse and develop intense and beneficial interest and so motivate the pupils' learning. And properly motivated learning means improved attitudes, permanency of impressions, and rich experience and ultimately more wholesome living."

### *Drawbacks*

*Audio-visual aids are not the panacea for all instructional ills:* Films, recordings, television etc., are all very good to improve teaching. But teachers and books cannot be replaced by these aids. Reading, writing and speaking will continue to be considered fundamental end points of instruction.

*Audio-visual aids are not aids to teaching*: Audio-visual aids are aids to children rather than to teachers—aids to learning, rather than to teaching. They do not make teaching easier, they do not lighten the work of teachers. Their use requires a considerable addition to the time spent in planning and preparing lessons.

*Audio-visual aids are not ends but means*: Audio-visual aids are but means to an end—end is good learning on the part of the pupils.

*Audio-visual aids are not designed to amuse the pupil*: They are to increase his interest in, and his comprehension of the topics being studied by presenting several slants on it, especially through his two most used senses—sight and hearing.

### What is an instructional aid?

An instructional aid is any device that assists an instructor to transmit to a learner facts, skills, attitudes, knowledge, understanding and appreciation.

A *visual* aid is an instructional device that can be seen but not heard. An *audio* aid is an instructional device that can be heard. An audio-visual aid is that device which can be heard as well as seen.

### Types of audio-visual aids

For purposes of convenience, we shall classify these aids into five types:

(1) Aids through the ear (auditory)
    (a) Phonograph and
    (b) Radio
(2) Aids through the eye (visual)
    (a) Motion picture
    (b) Stereoscope
    (c) The camera

- (d) The chalkboard
- (e) The flannel board
- (f) The bulletin board
- (g) Pictorial Materials
- (h) Representations-maps, globes, diagrams etc.

(3) Aids through the eye and ear (audio-visual)
- (a) Sound-motion pictures
- (b) Television

(4) Aids through activity
- (a) The school journeys
- (b) The objects, specimens, model collections

(5) Miscellaneous
- (a) Dramatization
- (b) Booklets
- (c) Newspapers and magazines.

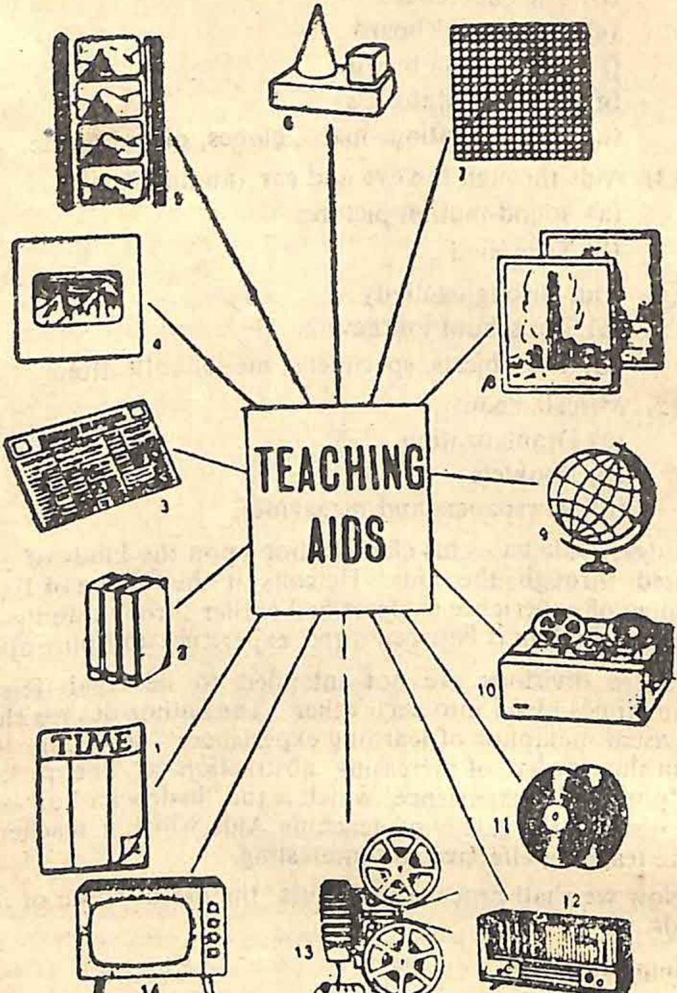
Edgar Dale bases his classification upon the kinds of experiences presented through the aids. He calls it the "Cone of Experience." The range of experience as described earlier through audio-visual aids as classified by him is between direct experience and pure abstraction.

These divisions are not intended to be rigid. They overlap and sometimes blend into each other. The author desires the cone to be 'a visual metaphor of learning experiences' depicting the various items in the 'order of increasing abstraction, as one proceeds from direct 'purposeful experience' which is the "bedrock of all education." Figure 4 shows the galaxy of teaching Aids which a teacher can use to make teaching effective and interesting.

Now we shall proceed to discuss the use of some of the important aids.

**Some important aids**

*School journeys*: School journeys are one of the most valuable of audio-visual aids. A school journey means an *out-door lesson*. Few school programmes are complete without a field trip. The local factory, retail store, bakeries, radio station, bank, temple, court etc., are real. School children can *see* them, *hear* them, *ask* questions about them and examine them minutely If we believe that first hand experiences with real things are the primary sources of learning, "walls of the school" must expand. Life in the classroom can cover only a small part of our total life, and if our learning is to become full and well-rounded we must go beyond our school walls and into the community as students and as working participants. School authorised, teacher-planned, curriculum-integrated school journeys are the most concrete and most real of visual techniques.



1. Periodicals
2. Books
3. Newspapers
4. Slides
5. Filmstrips
6. Models
7. Graphs & Charts
8. Pictorial materials
9. Globes & Maps
10. Tape Records
11. Photograph discs
12. Radio
13. Motion Pictures
14. Television

Fig 4: Galaxy of Teaching Aids

School journeys are one of the oldest visual aids. Pestalozzi, Herbart, Froebel, Aristotle and Rousseau emphasised that learning experiences which are real, life-like and available to the learner for first- hand scrutiny, questioning and recognition, are likely to be the most effective avenues through which children become informed about their social and natural environment.

*Advantages of school journeys:*

(i) *School journeys supplement and enrich curriculum experiences*: They offer experiences rich with meaning. It is one thing for a student to hear or read what goes on in sugar factory and quite a different thing for him to see it with his own eyes. As the school journeys provide a total experience, they can influence one's ideas, emotions and values to a great extent. They provide enough raw material for the mind, the emotions and senses to draw upon and thus help the child to get a wider experience in many ways. For instance, a nature trip to a bird sanctuary may awaken pupils to collect bird pictures; this may grow into much reading, study, and life-long activity. It is from such experiences that pupils can move on into the enriched life.

Harvey found that the use of field trips with Grade IX general science classes studying a unit on conservation significantly increased the development of scientific attitudes and added a new fund of factual information. Holliwell, comparing the use of film-strips with fields trips in teaching factual knowledge about the dairy and how a newspaper works, found the field trip to be significantly effective, and the addition of the film-strip to the fielp trip even more effective.

(ii) *School journeys provide first hand experiences:* Through the school journeys, children get experiences of the real world which they cannot experience through the best of books. The insect pests that are attacking the trees in the schoolyard become more educationally significant than the neat classification of insects presented in the general science text-book. Beautifying the school grounds is seen as a very vital part of the work in citizenship. Pasteur, a name in a book becomes vitalized when the children see how milk is pasteurized at a local dairy. Similarly, observing a factory or mill, an irrigation project in operation, visiting a post office, will give the pupils a first rate idea of how man is provided with various amenities of modern life. How Nangal and Bhakra Dam have changed the destiny of the Punjab, can easily be estimated by an actual visit to that place.

(iii) *School journeys add spice to the teaching of various subjects*: They break the monotony of classroom lectures, provide opportunities for direct experience and concretise some of the concepts.

(iv) *School journeys offer varied types of experiences to the pupils*: They give the pupils actual practice in purposeful planning and executing. Planning the excnrsion is an education in itself.

(v) *School journeys may help boys and girls to select their vocation*: A boy visiting a medical college or an engineering firm may become ambitious of becoming a doctor or an engineer. A girl after a visit to a college of nursing may like to take up the nursing profession.

(vi) *Children learn that life is learned through living it*: Children learn that living is not something that can be neatly divided into school and life. They learn that unless school is life and life is school, so many opportunities for effective and permanent learning are missed.

*Different types of school journeys*:

The school journeys that have recognized educational uses fall into three classifications: (1) The excursion (2) The study trip or field trip (3) The tour.

1. An *Excursion* is any school trip taken by a class to get an over-all view of a situation belonging to the field under study. Excursions are ordinarily for short distances and are completed within the school day. Students may spend half the day or more visiting a local factory, museum, college or conservation project. Their incidental lessons in co-operation, sociability and general attitude are as important as the gathered facts.

2. The *study trip* or *field trip* is distinguished by its concentration on learning particular facts. Its success is judged by its fulfilment of a predetermined aim, such as collecting specimens for a zoological study, collecting rock samples in geology. A field trip may be made to places within the walking distance of the school building. The class may study the trees in the schoolyards, note the soil erosion on a nearby slope, visit the grocery store or post office. Such trips are completed within a single class period. The incidental social lessons are not the point of a field trip, inevitable though they are. A *tour* is an extended excursion that may cover a wide geographical area or even include foreign countries and its duration may be of weeks or months. Tours might be arranged just after a term such as summer, winter and spring, to distant places of sociological, or industrial interest.

*Excursion opportunities*: Every community offers innumerable opportunities for excursions. Government buildings, banks, courts, public service organisations, museums, power plants, military installations, and historic buildings and sites, art galleries, airports, city halls, telephone exchanges, colleges are only a few of the opportunities in an area.

No teaching possibility in the area should be overlooked. The only point which is to be borne in mind is that the excursion must suit the age levels of the pupils.

Excursions to aerodromes, harbours, railway stations and bus stations for teaching "world communications and transport," excursions to the local shops, makets and exports and import centres for teaching "man's wants—where and how things are produced to satisfy them," excursions to places of local cultural interest—temples, mosques for a detailed study of the religions in India and to places of architectural excellence and archaeological sections of museums for teaching Indian history from the early period down to the rise of Shivaji and the birth of the nation. *Swarajaya* excursions to the government and other administrative institutions and visits to co-operative stores, are suggested as activities for teaching "how we are governed today and our economic struggle respectively."

*How to conduct a school journey*?

In order to avoid a "what are these children doing" attitude, it is necessary to plan each step of a school journey. The success or failure of a school journey is in direct ratio to the amount and thoroughness of this groundwork. Each journey will present its individual problems. However the following conditions must be fulfilled if the journey is to be of maximum benefit.

(i) Determine the specific aims of the school journey. "What do you want to teach by means of the school journey?" A journey is a mere sight-seeing or picnic unless pupils understand its relationship to school work and the value of information gained. It must result in solid educational benefits. School journeys might be used to:

(1) Introduce or arouse students interests in a unit.

(2) To give pupils specific information or skill training.

(3) Follow up or review a learning situation.

(4) To inspire a student with good attitudes.

(ii) The journey must be well conducted. For this, careful planning is necessary. After the place of visit has been decided the teacher responsible should first obtain permission (where necessary) from the proper authorities and check all institutional regulations. He should make definite arrangements with the manager or executive regarding the (i) date, (ii) time, (iii) number of students, (iv) number of guides, (v) objectives of the trip. The teacher must visit the place beforehand and get all the necessary information so that he may direct the observation of the children, anticipate their difficulties and be prepared for solving them. He should check up location of rest rooms, eating facilities and transportation facilities. If the visit is to a distant place, permission of the guardian should be obtained. The cost of the journey per child should be estimated and necessary money collected. The teacher incharge should be equipped with a first-aid box. Through the guidance provided to the students in the beginning, he should ensure that each pupil knows what to observe. He should also see that children do not get too tired.

(iii) The pupils must be adequately prepared for a visit. Their interest in the trip must be aroused. The teacher should point out what specific things the pupils should observe during the excursion. Allied audio-visual aids, such as flat pictures, maps, charts, posters, slides, motion pictures, film strips should also be used to put the pupil in the proper frame of mind. A list of things which can be seen on the way and at the place should be handed to each member of the group. Pupils should be encouraged to ask questions, take notes, draw sketches, and take photographs. If the pupil realizes that his ability will be tested at the completion of the trip, it will act as an additional incentive to pay close attention to all details.

(iv) School journeys must be adequately followed up as soon as possible by student appreciation, discussion and further teaching. The pupils may be given exercises on the journeys. It is extremely important that pupil's knowledge and ability be adequately tested, and errors corrected immediately.

Well-planned, well-conducted and well-followed-up school excursions can certainly revolutionise the process of learning and teaching in our schools.

**Demonstrations**

Demonstrations being visualized explanations of important facts, ideas or processes, occupy a very important place in teaching. The demonstrator shows how certain things are done. A science teacher demonstrates the properties of a gas, say oxygen, a music teacher demonstrates how to play a musical instrument. An art teacher demonstrates how to prepare colours for painting. A la nguage teacher demonstrates through guided performance the correct pronunciation of a word by showing the class the position of the lips and the tongue. A civics teacher may demonstrate with a diagram on the chalkboard the local self government. An arithmetic teacher may demonstrate the method of calculating volume and areas with the help of a chalkboard.

*Main points in demonstration*

(i) *Establish rapport*: Before beginning a demonstration it is essential that good rapport is established. Be simple, friendly, as warmly human as possible. A demonstration is most effective when the learner gives it his full attention.

(ii) *Ensure good communiction*: The demonstrator knows his subject thoroughly, whereas the observer may have had little experience with it or none at all. It is, therefore, essential that the demonstrator should be able to put himself in the position of the observer to ensure good communiction.

(iii) *Watch and emphasize the key points.*

*Chief characteristics of demonstrations*

(i) *Demonstrations help in explaining material objects, ideas as well as abstract subject matter*: Be it the structure of a musical composition, organisation of state or central government, the solution of an arithmetic problem—all can be demonstrated.

(ii) *Demonstrations are virtually indispensable in teaching a skill*: The teacher wants to teach the child to play on a violin, sow the seeds, spin on a takli, use an engineer's slide rule; demonstrations are there to help him and explain everything.

(iii) An effective demonstration requires the use of many aids.

Audio-visual materials—the chalkboard, a film strip, a film, flannel board, a diagram, a chart etc., are frequently as necessary as the demonstrator and the audience.

*How to prepare a class room for demonstration?*

In order that demonstration gives good results in teaching and learning, class room must be well prepared for it. The following points may be borne in mind for good demonstrations:

(i) *Proper preparation*: The teacher should make sure that every step is planned and every piece of equipment ready. It will really pay rich dividends later if the demonstration is rehearsed. The steps to be followed may be outlined on the chalkboard. To save time, the outline should be written on the board before the class begins. The points can be covered by strips of paper and dramatically removed, one by one as the demonstration proceeds.

(i) *Good performance*: While performing the demonstrations, make sure that everyone can see and hear. Try to reinforce hearing and seeing by written material. The written material should be handed out to the students at the end of the performance. Set the tone for good communication. Demonstrations should be kept as simple as possible. Do not digres from the main ideas. Check continually whether the demonstration is being understood. Summarize as you go along.

(ii) *Evaluate demonstration*: Evaluate your demonstration on two fronts: (1) Have the students benefited from the demonstration? (2) Have you succeeded in demonstrating well.

**Objects and specimens**

These are also effective teaching aids. Objects and specimens become even more potent when used with other teaching aids such as pictures, maps, charts.

They say 'A bird in hand is worth two in the bush.' This saying acquires a new meaning when it is applied to the use of objects and specimens.

Objects may be defined as real things which have been removed as units from their natural settings. Locally manufactured products, coins and stamps, relics, early tools and weapons, are some of the objects which can be used effectively in teaching various subjects.

A specimen may be defined as a typical object or part of an object, which has been removed from its natural setting and environment.

These teaching aids are powerful interest arousing devices which possess the capacity of involving all the five senses—touch, sight, hearing, smell and taste.

In order to facilitate the use of objects and specimens, they should be placed in boxes carefully labelled and stored in an accessible almirah.

**Models**

Models may be defined as three-dimensional representations of real things. They reduce large objects to a size convenient for observation and produce interior views of objects which are normally covered or are otherwise invisible. Non-essentials are removed so that fundamentals can be more readily observed. Models can be handled, operated and seen from a number of angles and hence are generally more interesting and instructive than a picture or a chart which is two dimensional.

A model 'should have the essential qualities of accuracy, simplicity, utility, solidity and ingenuity' to be maximally useful.

Models can be classified as:

(i) *Scale models*: In order that pupils from a correct idea of an object say a dam or project, scale models are used. Similarly, in the teaching of physiology, exact scale models of the organs of the human body are used.

(ii) *Simplified models:* In a learning situation, give an idea of the external form of an object, e.g. animals, bird, fish, river valleys, which primary school children prepare out of clay, have great educational value, although they are not made to exact scale.

(iii) *Working models:* Such models are used to demonstrate in a simple way an operation or process. For example, the working model of a human heart gives a thorough understanding of its various operations.

(iv) *Cross-sectional model:* Such models show the inside of an object. They are of immense use in the teaching of technical subjects.

Models can be useful for generating student interest. They should be used in as interesting a maner as possible. Students may be encouraged to examine the models, ask questions and make generalisations. They should be encouraged to produce models to illustrate objects, concepts or ideas.

**Diagrams**

A diagram is a simplified drawing designed to show inter-relationship primarily by means of lines and symbols. Diagrams being of an abstract character, require a careful foundation work before they can be used effectively with a class of pupils. Diagrams are used in the teaching of almost all subjects. They are indispensable in geometry and science.

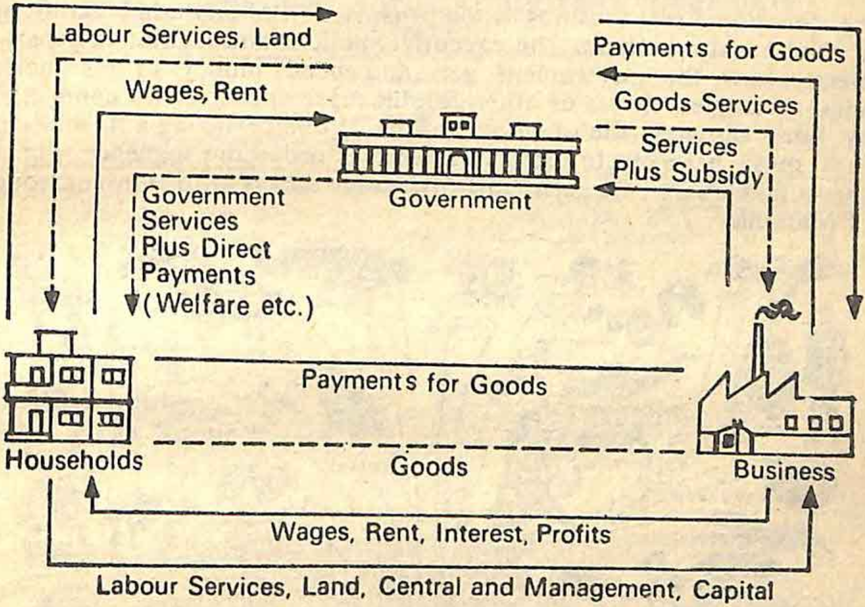


Fig. 5. Flow Chart—Circular Flow of Income

*Circular Flow of Income*

There are three sectors—the household sector, the business sector, and the public sector in government. The household sector gets its income from selling the services of its resources, to the business sector and the government sector. The household sector then takes this income and buys goods and services from the business sector and pays some to the government in the form of taxes.

Diagrams usually can be better used for summary and review than for introduction. They should be used alongwith the other aids.

A good diagram must approximate two standards:

(i) It must be technically correct, and neatly drawn in proper proportions well-labelled and explained.

(ii) It should be so prepared that it can be moved and seen from all angles.

**Charts**

Charts may be defined as combination of graphic and pictorial material designed for the orderly and logical visualising of relationships between key facts and ideas. The main function of the chart is always to show relationships such as comparisons, relative amounts, developments, processes, classification and organisation.

Charts are of various types. The important ones are:

1. *Flow chart:* It is used to show organisational elements and the functional relationships as the organisation of city administration, a relationship between the executive, judicial and legislative departments, how the government gets and spends money. In this chart, lines, rectangles, circles or other graphic representations are connected by lines showing the directional flow. While designing a flow chart, care must be taken to preserve a sense of order and sequence. Fig. 5 shows flow chart—Circular flow of Income and Fig. 6 shows Group of Mammals.

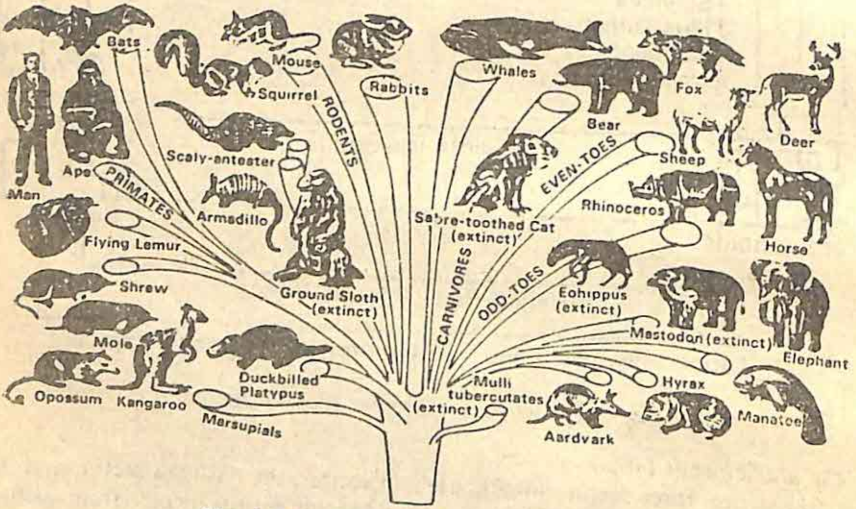


Fig. 6. Tree Chart—Group of Mammals

Tree Chart—Group of mammals divided under smaller groups. Some of these groups have many more kinds of mammals in them than others. The aardvark is the only mammal in its group. So is the little coney. In the Platypus group there is only one other animal—the spiny anteater. The carnivores are one of the big groups. Even-toes are hoofed animals. The horse, rhinoceros, zebra, and donkey come in odd-toes group. Rodents are a bigger group. The primates include all the monkeys, lemurs and apes.

*Tabulation chart:* Here the data are presented in a tabular form. It is used for comparisons or for listing advantages and disadvantages of a business or organisation. It presents information in ordinary sequence. Themes such as great battles of Indian history, may be analysed under the heads—the name of the battle, year in which fought, the parties involved, the result and significance. etc.

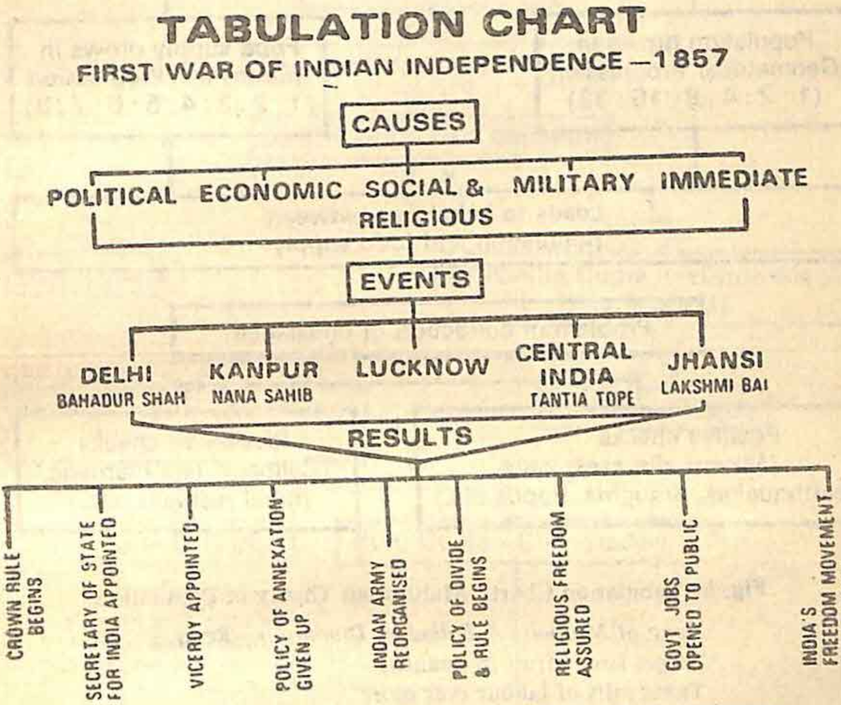


Fig. 7. Tabulation Chart—First war of Indian Independence

Fig. 7 shows a tabulation chart—First War of Indian Independence and Fig. 8 shows Malthusian Theory of Population.

*Genealogy chart:* This is used to represent the growth and development of an empire, dynasty of historical facts of this nature. Taking an analogy from the tree, the origin is a single line rectangle, circle or other representation of the trunk and the various changes or developments are shown as the branches. Such charts have been traditionally used in history to represent blood relationships between the members of the same line with the help of visual symbols. Genealogical chart of the Imperial Guptas has been shown in Fig. 9. and Fig. 10 shows the First Family of Indian Business.

*Time charts:* provide a chronological framework within which events and developments may be recorded. They develop time sense among the pupils, helping them to comprehend and visualisee the pageant of time and its relationships.

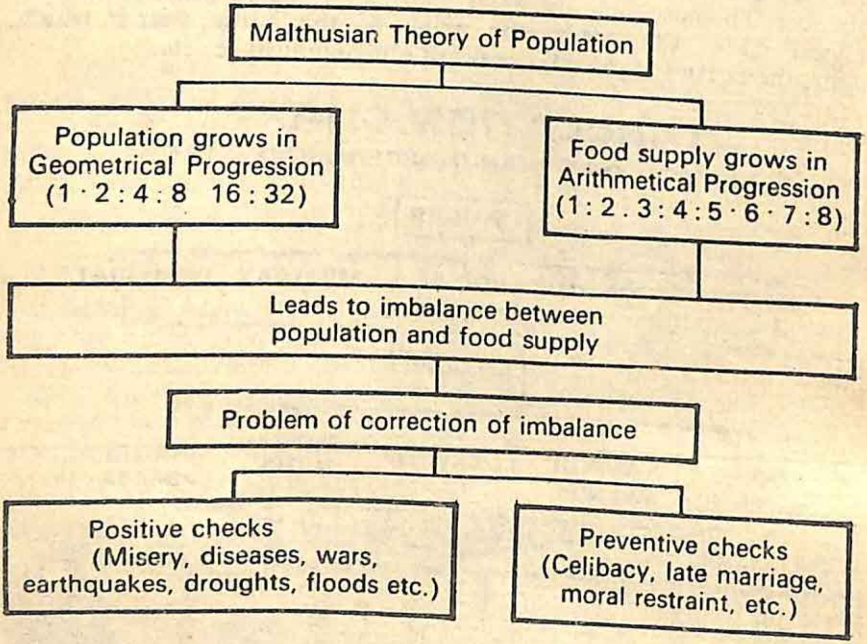

Malthusian Theory of Population
Population grows in Geometrical Progression (1 · 2 : 4 : 8 16 : 32)
Food supply grows in Arithmetical Progression (1 : 2 . 3 : 4 : 5 · 6 · 7 : 8)
Leads to imbalance between population and food supply
Problem of correction of imbalance
Positive checks (Misery, diseases, wars, earthquakes, droughts, floods etc.)
Preventive checks (Celibacy, late marriage, moral restraint, etc.)

**Fig. 8.** Tabulation Chart—Malthusian Theory of Population

*Song of Malthus: A Ballad on Diminishing Returns*
To get land's fruit in quantity
Takes jolts of labour ever more
Hence food will grow like one, two, three...
While numbers grow like one, two, four...

Charts can be made attractive by the use of different colours and drawings.

Fig. 11 depicts 50,000 years of Philippine pre-history and Fig. 12 shows India's strides in space.

**Graphs**

Graphs are flat pictures which employ dots, lines or pictures to visualise numerical and statistical data to show statistics or relationships. They are made according to exact specifications and depict specifically quantitative data for analysis, interpretation or comparison. Graphs are of various kinds:

*Line graph*: This is used when a considerable quantity of data is to be plotted or when the data are continuous. The concepts are represented with the help of simple lines vertically or horizontally drawn.

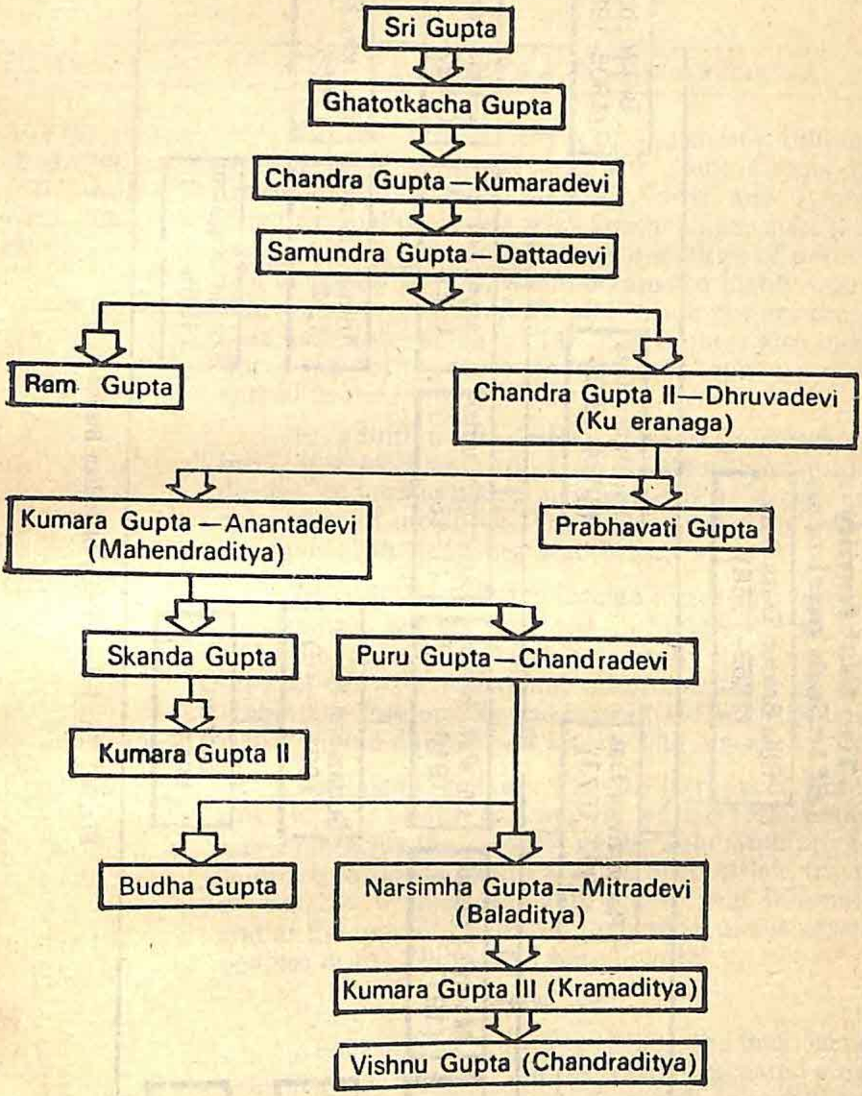

Sri Gupta
Ghatotkacha Gupta
Chandra Gupta—Kumaradevi
Samundra Gupta—Dattadevi
Ram Gupta
Chandra Gupta II—Dhruvadevi (Ku eranaga)
Kumara Gupta—Anantadevi (Mahendraditya)
Prabhavati Gupta
Skanda Gupta
Puru Gupta—Chandradevi
Kumara Gupta II
Budha Gupta
Narsimha Gupta—Mitradevi (Baladitya)
Kumara Gupta III (Kramaditya)
Vishnu Gupta (Chandraditya)

Fig. 9. Genealogical Chart of the Imperial Guptas

Pictorial illustrations and cartoons are occasionally used on the line graphs to increase their interest and readability. Fig. 13 shows a line graph—Railway Earnings and Railway Finances.

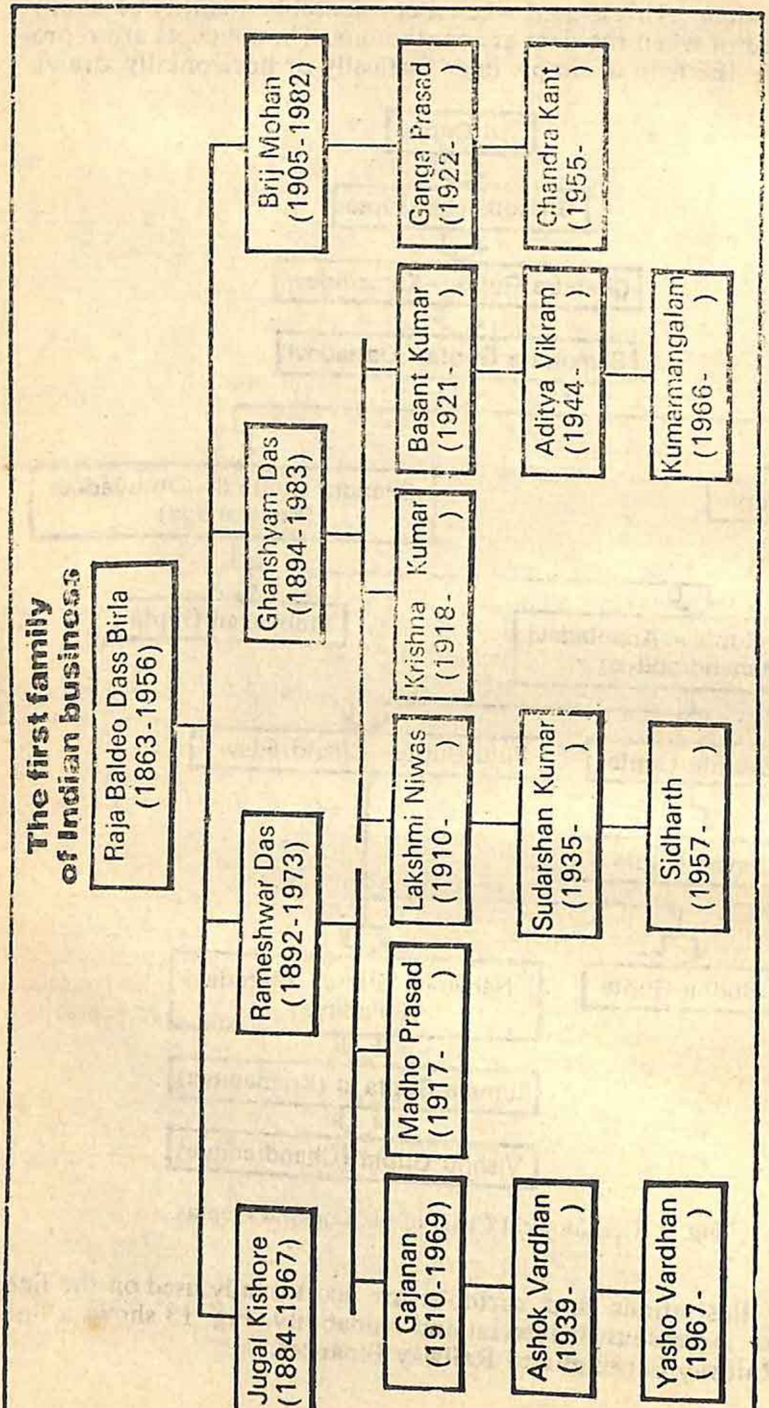


Fig. 10. The First Family of Indian Business

## 50,000 YEARS OF PHILIPPINE PRE-HISTORY

Chart Prepared by the Division of Anthropology, Philippine National Museum

| DATES | CULTURAL PERIODS AND CHARACTERISTICS |
|---|---|
| AGE OF CONTACTS AND TRADE WITH THE EAST | By the 12th century A.D., the coastal Filipinos were carrying on formal trade with China, Cambodia, Indo-China, Indonesia, Malaysia, India and Arabia. The principal trade was with South China merchants who, in junks (1), brought large quantities of pottery, (2), including jars (3), which became so highly valued that they replaced all Filipino made pottery except that for household use (4). The Chinese also introduced the pottery stove (5) which is now so widespread in the islands. |
| | In addition to pottery, the foreign merchants brought in cloth and iron and introduced new fishing devices, economic plants, new patterns of dress, and even traits of social life. The Filipinos in turn traded products of the land, sea and forest. |
| 1,100 A.D. | As contacts with the foreign merchants increased, trading centers emerged in Manila, Cebu, Jolo and other areas of the archipelago. By this time, too, most of the basic social and cultural features of contemporary Filipino life had crystallized and a generalized Filipino culture and society had emerged. |
| 1,000 A.D. | The Islamic religion was also introduced during this period, about the middle of the 15th century A.D., embracing the Filipinos of the Sulu Archipelago, southern Mindanao and Palawan. Still earlier, a type of syllabic writing was introduced from Indonesia and at the time of Spanish contact most of the coastal peoples in the Philippines were literate. |
| | **Metal Age** |
| | About 400 B.C. possibly earlier, the first metals —bronze (6 and 7), copper, gold—appeared along with beautiful ornaments mode of jade (8 and 9) and other semi-precious stones. Shortly afterwards, by at least 200 B.C., iron appeared (10), sweeping throughout the archipelago so rapidly that it submerged any development of a true "Copper-Bronze Age" in the Philippinese. The basic technological change was thus |

from stone-tool using to iron tools and weapons. It is. believed that the type of forge used to work iron (11) was similar to that still found among the mountain peoples of the Philippines.

During the Metal Age the art of weaving with the back-loom (12) appeared. This type of loom is still used by mountain peoples such as the Ifugao of northern Luzon and the Mandaya of Davao. It is possible that glass making was known during the Metal Age—beads and bracelets of green and blue glass being manufactured. Pottery-making continued to be highly developed as shown by the wide range of forms, commonly with high foot rims (13), and beautifully incised designs.

The dead continued to be buried in large earthenware jars either in caves or in open areas in which the jars had covers made of coral or a soft stone. The use of wooden coffins (14) appeared for the first time during the Metal Age. The coffins were also placed in caves.

This period saw a marked growth of the population along the coasts, bays, and rivers of the larger islands, and by the latest phase of the Metal Age many of the basic features of present-day Filipino culture had emerged. Except for corn, the sweet potato the ... and tobacco all of which were introduced from the new world by the Spaniards, the basic crops which we know today—rice, millet, taro, root crops —were already planted during the Metal Age.

200 B.C.

### New Stone Age (Neolithic)

500 B.C.

When the sea level began to rise at the termination of the Ice Ages, the land bridges disappeared. The migrating peoples now used boats to sail into the Philippines. They brought with them boats, which were only more efficient and the first agricultural techniques, probably rice and taro. Animals were domesticated such as the pig and chicken. Man moved out of the caves and began to settle along the coast where fish, crabs, shrimp, and shellfish were plentiful. It is apparent that the people lived in small hamlets and that the population, except on Luzon, was small.

### Late Phase

2,000 B.C.

The stone tool of the late Neolithic people were generally quadrangular in cross-section (15, 16, 17 and 18) but included tools of other forms such as gouges

(20) for boat building. Spear points (19) and ornaments (21) were also made of stone. During the Neolithic clothing was made from the bark of trees in which beaters (22) fashioned from stone were used to pound the bark. About 1,500 B.C., pottery (24) was introduced into the Philippines as well as the practice of placing the bones of the dead in pottery jars which were then hidden in caves. The caves which had been used for habitation in the Old Stone Age now used only for cemeteries.

### Early Phase

The earliest Neolithic tools were ground only on the edge of the blade (27), the body of the early adzes being either natural or pecked and flaked into axe-and-adze-like forms. Later the stone tools were round or oval in cross-section (25 and 26).

### Old Stone Age (Palaeolithic)

Man is ancient in the Philippinos having moved
8,000 B.C. into the archipelago over land bridges during the Ice Ages or Pleistocne epoch when the sea level was lower. As shown by the ancient stone tools and the fossil remains of a human (28) excavated in the famous Tabon Cave, located on the southwest coast of Palawain island, modern man (Homo Sapiens) reached the Philippines at least 53,000 years ago...

The earliest Filippines were food gatherers, hunters, and fishermen who sometimes lived in light and airy limestone caves, a common practice at that time throughout the world. Caves were also important as a source of edible bats and birds. The Tabon excavations have shown that the ancient Filippinos had very primitive tools made either from flakes of chert which had sharp cutting edges (29, 30, 31 and 32) or large chopping tools fashioned from pebbles (33) Excavations in Tabon Cave have shown that these types of tools did not change for more than 40,000 years.

In Cogayan Valley and in Pangasinan province, the fossil bones of extinct animals of the Pleistocene epoch have been found, including elephants, stegodons, rhinoceros, and giant tortoises, which date to perhaps 200,000 years ago. To this date, however, archaeologists have not found man-made tools in association with these ancient fossil mammals. But,
50,000 B.C. the search continues...

(The figures in brackets refer to illustrations on pages 154 and 155.)

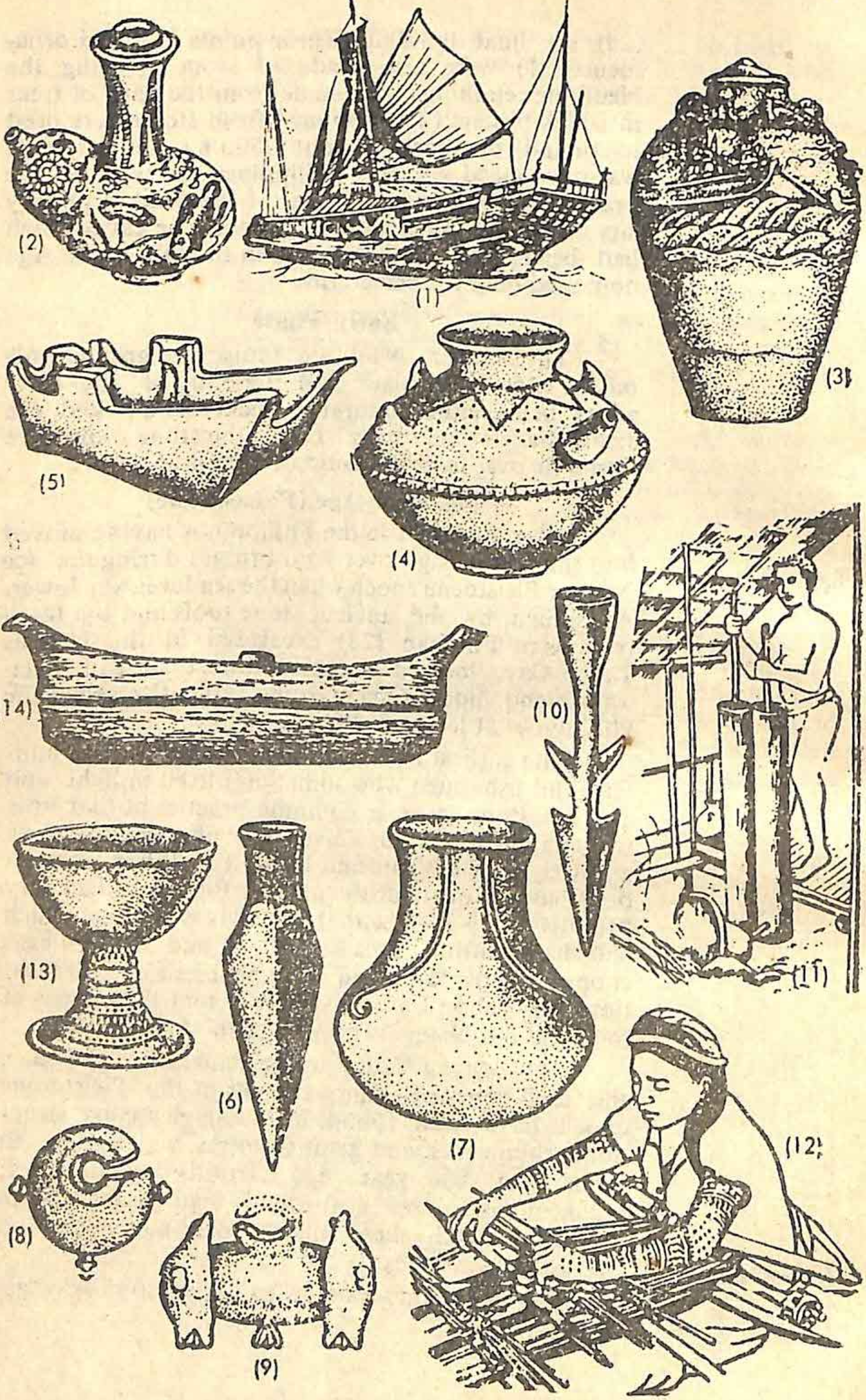


**Fig. 11.** 50.000 years of Philippinian pre-history

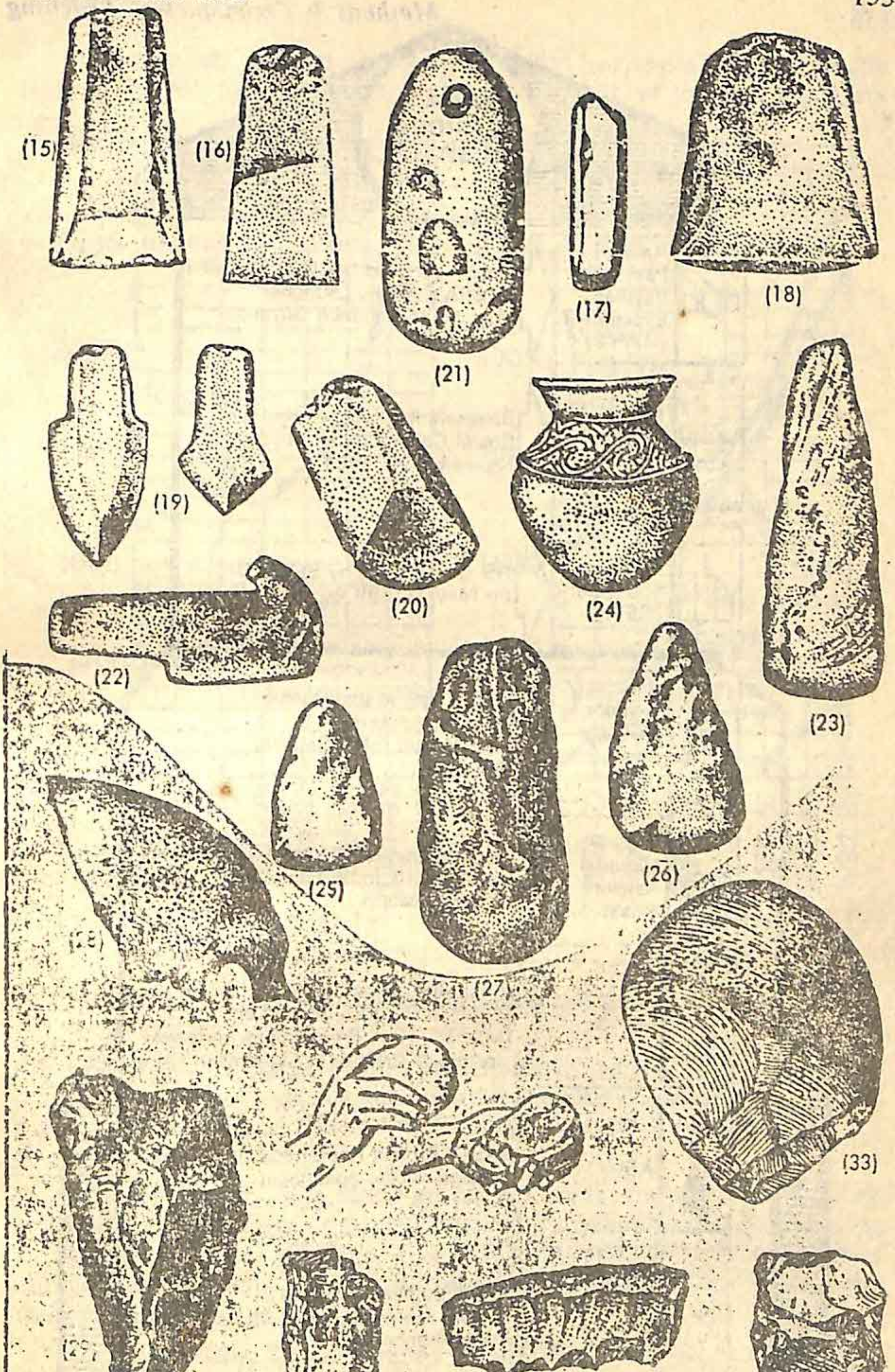
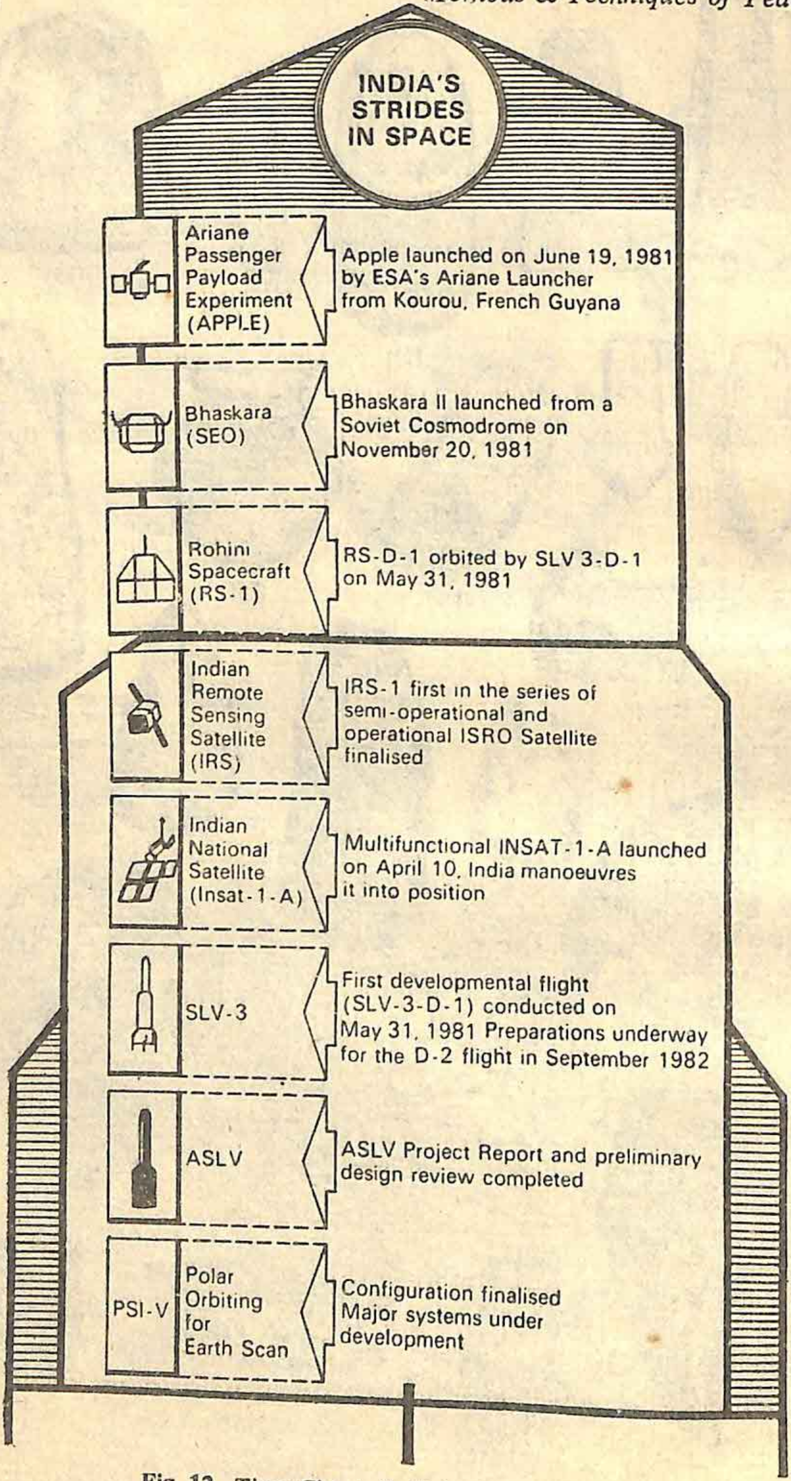


Fig. 11. 50,000 years of Philippinian pre-history



| | |
|---|---|
| Ariane Passenger Payload Experiment (APPLE) | Apple launched on June 19, 1981 by ESA's Ariane Launcher from Kourou, French Guyana |
| Bhaskara (SEO) | Bhaskara II launched from a Soviet Cosmodrome on November 20, 1981 |
| Rohini Spacecraft (RS-1) | RS-D-1 orbited by SLV 3-D-1 on May 31, 1981 |
| Indian Remote Sensing Satellite (IRS) | IRS-1 first in the series of semi-operational and operational ISRO Satellite finalised |
| Indian National Satellite (Insat-1-A) | Multifunctional INSAT-1-A launched on April 10, India manoeuvres it into position |
| SLV-3 | First developmental flight (SLV-3-D-1) conducted on May 31, 1981 Preparations underway for the D-2 flight in September 1982 |
| ASLV | ASLV Project Report and preliminary design review completed |
| PSl-V Polar Orbiting for Earth Scan | Configuration finalised Major systems under development |

**Fig. 12.** Time Chart—India's Strides in Space

*Bar graph:* consists of bars arranged horizontally or vertically from a 'zero' base. The size, length and colour of the bars represent different values. These graphs are especially helpful in comparing or contrasting many subjects such as comparisons of income and wages, quotas, scales. Fig. 14 shows Bar Graph—Railway Budget and Fig. 15 shows Farm Front Record.

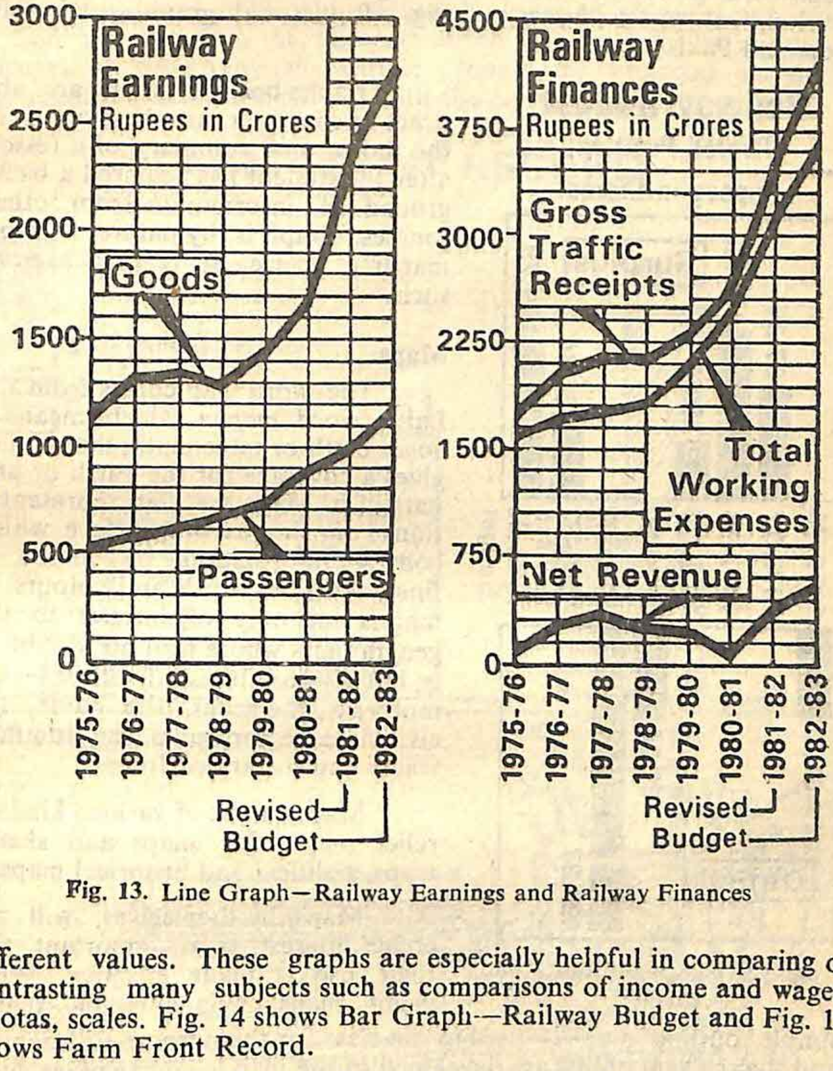


Fig. 13. Line Graph—Railway Earnings and Railway Finances

*Circle graph*: The circle graph is a circle, the sections of which are used to represent component parts of a whole. Such information as the distribution of expenditure of a municipality, distribution of money on different subjects in the Five Year Plans, can be typically represented on circle graphs.

Fig. 16 shows Circle Graph—Break-up of a rupee.

*Pictorial graph*: It is an outstanding method of graphic representation. Pictures are used for the expression of ideas. They are, thus more attractive and are easily understood. Fig. 17 shows a pectorial graph—tea production in India. Fig. 18 shows a pictorial graph—development of telephones and Fig. 19 pictorial graph—salaries in India and Pakistan.

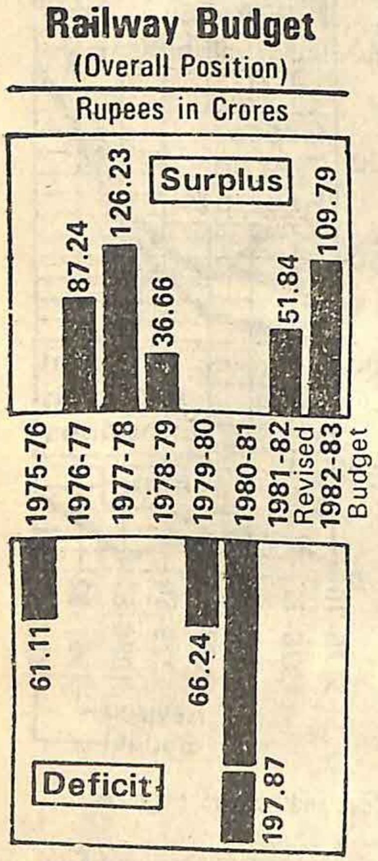


Fig. 14. Bar Graph—Railway Budget

Graphs being symbolic are abstract in character, are best used in the body and summary of a lesson after the student has acquired a background of information from other sources. Graph is, by nature, a summarising device. It is best used as such.

**Maps**

The word map comes from the Latin word *mappa* which means a cover cloth or table cloth; thus a map gives a coverage for the earth or any part of it. Maps are flat representations of the earth's surface which convey information by means of lines, symbols, words and colours. A map is not only of interest to the geographers whose tool no doubt it is, but also to almost all citizens—the motorists, the scout, the guide, the civil defence personnel, the administrator and the armed forces.

Maps can be of various kinds—relief maps, flat maps and sketch maps, political and historical maps.

Maps, by themselves, will not create interest. It is important that their use is made effective. While using maps, it is advisable that a simple outline map is used in the class for the purpose of teaching, and the relevant points are developed in the map in course of teaching. It is also desirable that the individual pupils should possess outline maps and fill them as the lesson progresses, and the map presented to the class, as a whole is developed. Fig. 20 shows map of Salt Producing Centres, Fig. 21—Areas for Oil Exploration, Fig. 22—Elections, May 1982, and Fig. 23—Non-Aligned Summits.

**Globes**

Globe is a three-dimensional representation of the earth. It is the spherical model of the earth.

As events happening in the world have repercussions all over the world, globes become specially useful, with the help of the globe, we can see the physical unity of the world, the relation of one part to all rest and the direction of one part of the world relative to another. Concepts of geography as latitude, longitude, changed in time seasons can be easily understood with the help of the globe.

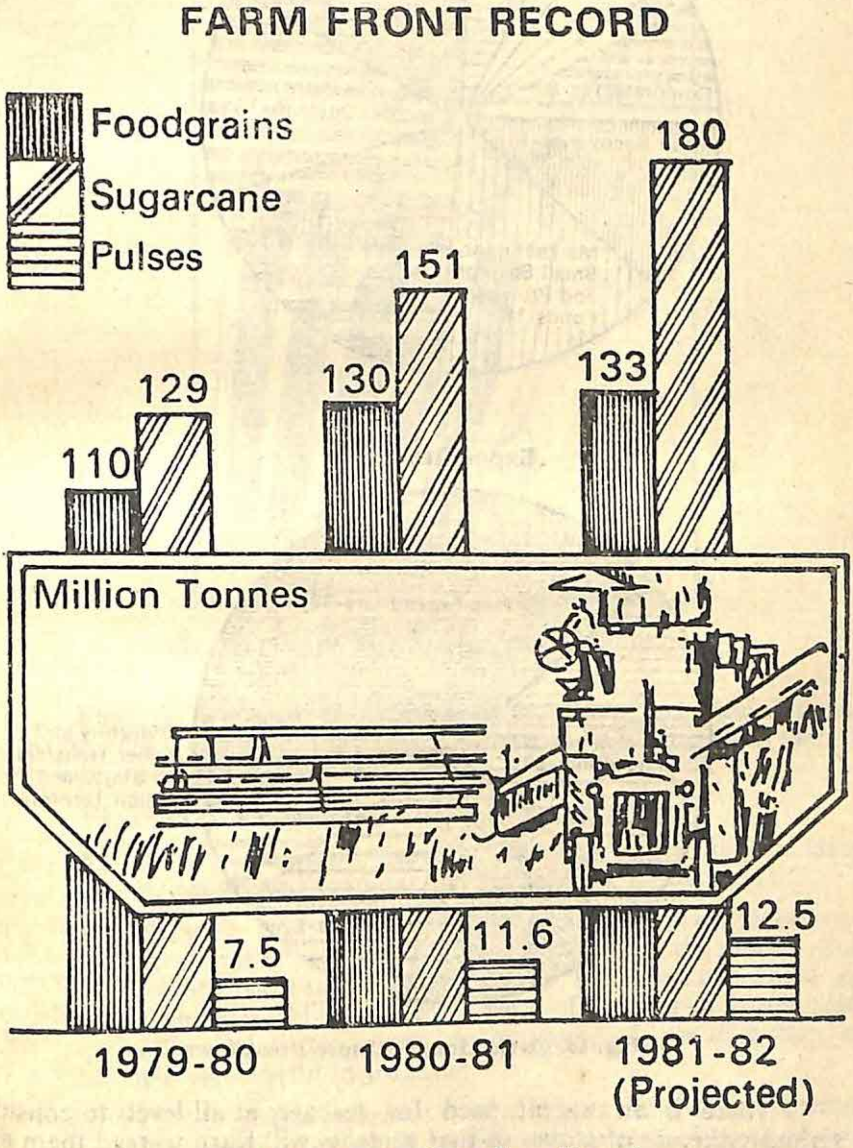


Fig. 15. Bar Graph—Farm Front Record

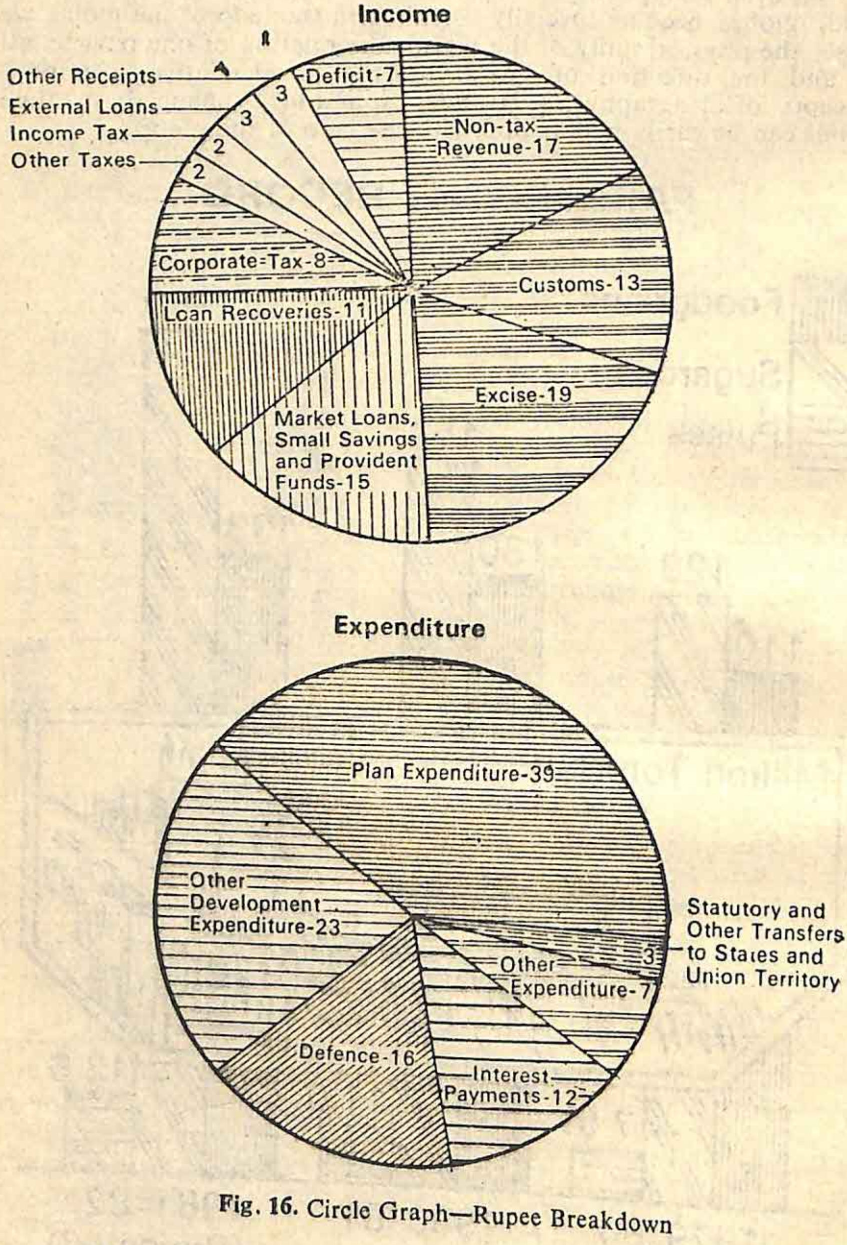


**Fig. 16.** Circle Graph—Rupee Breakdown

There is an urgent need for teachers at all levels to consider seriously the use of globes so that students will learn to read them and to get information from these essential tools of education.

**Pictures**

The love of children for pictures can be capitalised to add zest, interest and vitality to the teaching of various subjects.

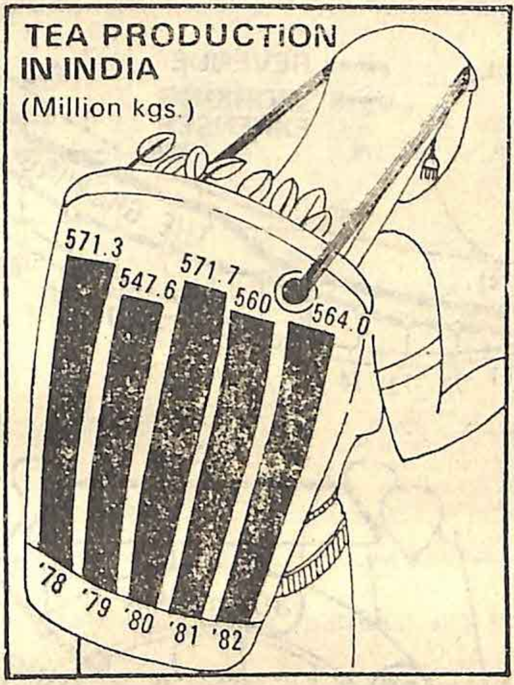


Fig. 17. Pictorial Graph—Tea Production in India

Pictures are said to be representations of beautiful dreams of reality. They simplify the abstractions and help create and maintain interest.

Various types of pictures can be used in teaching.

(i) *Picture postcards* showing historical sites and buildings, museums and monuments, art galleries and courts etc.

(ii) *Pictures made on charts or pasted on charts:* Pictures of great reformers, good kings, scenes from the courts, architecture, costumes, armours, life in primitive times and afterwards, life in different parts of the world, development of means of transport, development of postal system, etc. are very useful in teaching.

(iii) *Text-book and reference book pictures* help and supplement the reading material in different subjects. Fig. 24 shows a picture—Snakes and Ladders, A Nutrition Game. It can

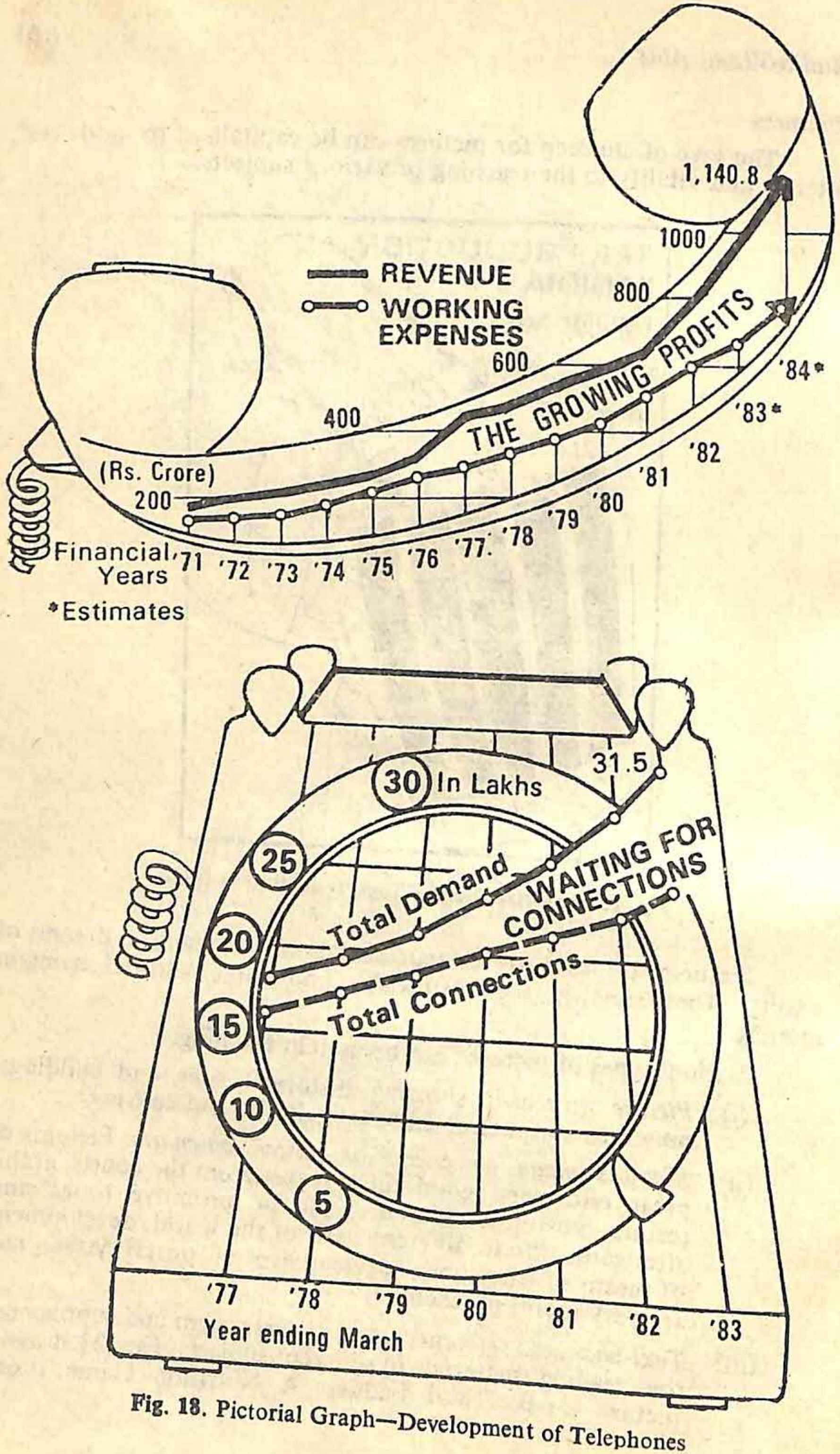
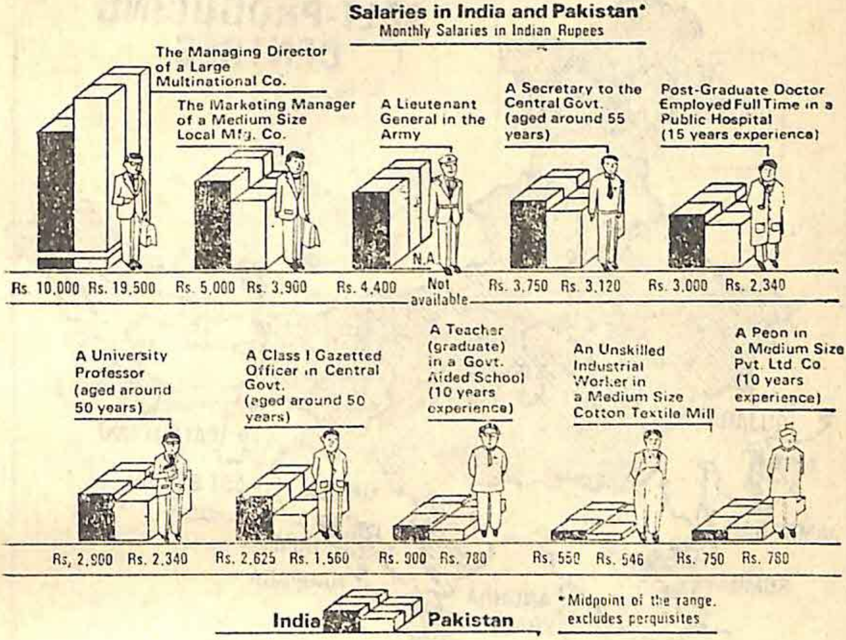


Fig. 18. Pictorial Graph—Development of Telephones



Fjg. 19. Pictorial Graph—Salaries in India and Pakistan

help in understanding the 'nutrition' in a very interesting way.

(iv) *Pageant type aids*: Well drawn and coloured portraits can prove particularly useful for children in the primary classes.

(v) *Picture assembly*: A number of pictures can be assembled to present a topic. Topics like social references in India after 1858, Shah Jahan as a builder. Reformation in Europe, etc. can be presented through picture assembly. Dams and projects, too can be explained through pictures.

(vi) *Picture diagram*: Here abstract ideas are presented in pictorial symbols. Objects drawn or painted are mere symbols which represent other ideas than are apparently presented by the pictures. The ideas represented are indicated by appropriate titles.

Fig. 25—showing Jawaharlal Nehru delivering the Tryst with destiny speech, Fig. 26—Lt. Gen. A.A.K. Niazi Signing the Surrender Document, Fig. 27—picture of Instrument of Surrender gives a peep into the significant pages of our history. Similary, pictures given in Fig. 28, 29, 30 give us glimpse of development in various spheres in a very effective way.

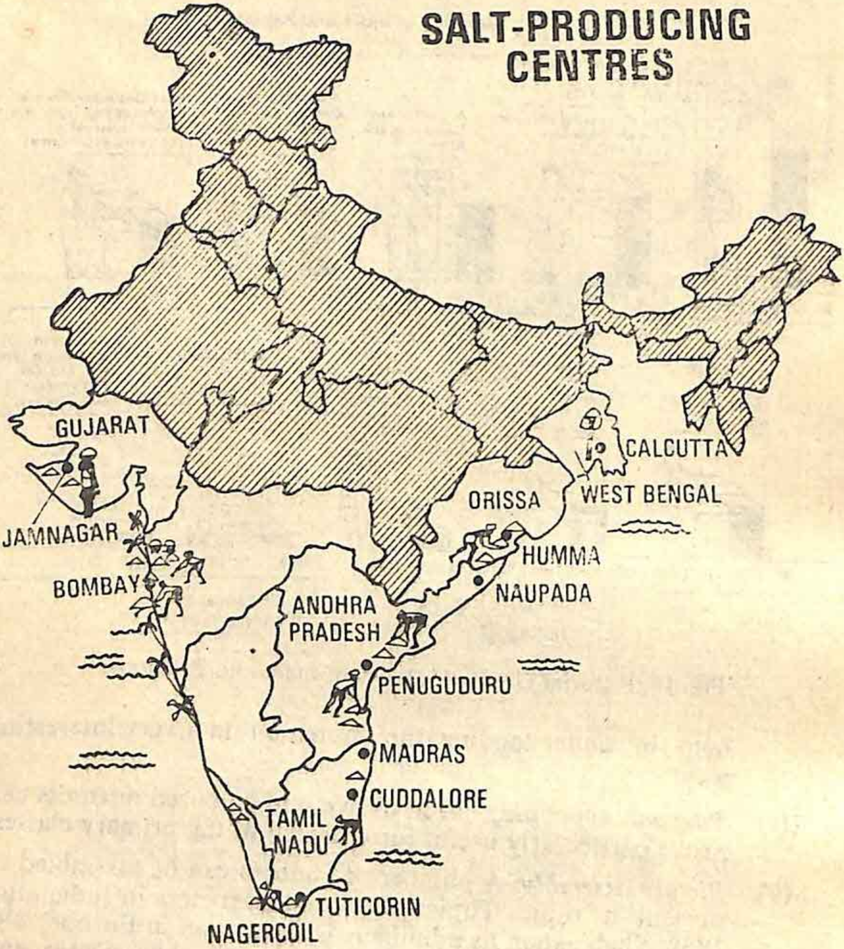


Fig. 20. Map—Salt Producing Centres

(vii) *Cartoons*: A cartoon is a metaphorical presentation of reality. It makes strong appeal to the emotions and thus enhances learning.

Fig. 32 and 33 show cartoons conveying significant meaning.

Newspapers, especially Sunday issues, magazines like *Life*, *Time*, *Chandamama*, *Nandan*, pictorial reviews, *Illustrated Weekly*, are good sources of pictures. The teacher should encourage the pupils in the collection of appropriate pictures and ensure their effective use.

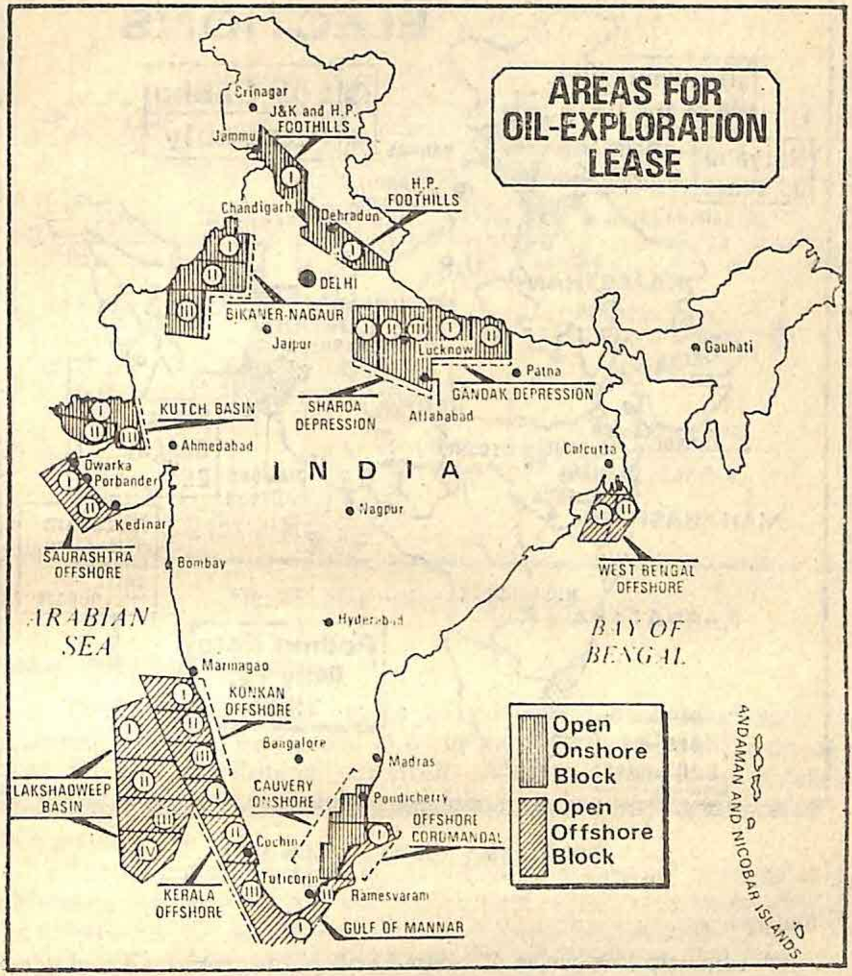


Fig. 21. Map—Areas for Oil Exploration

**Slides**

The use of slides is becoming increasingly popular in teaching. They possess an attention focusing power which increases class interest and motivation. They can be projected in a partially darkened room thus facilitating further class discussion and note taking. They may be enlarged to desired size, repeatedly shown and held on the screen for any period of time. A variety of printed, typed or drawn material can be presented in different colours or combinations on slides.

Now slide albums on various subjects are available which could go a long way in making them timely and interesting.

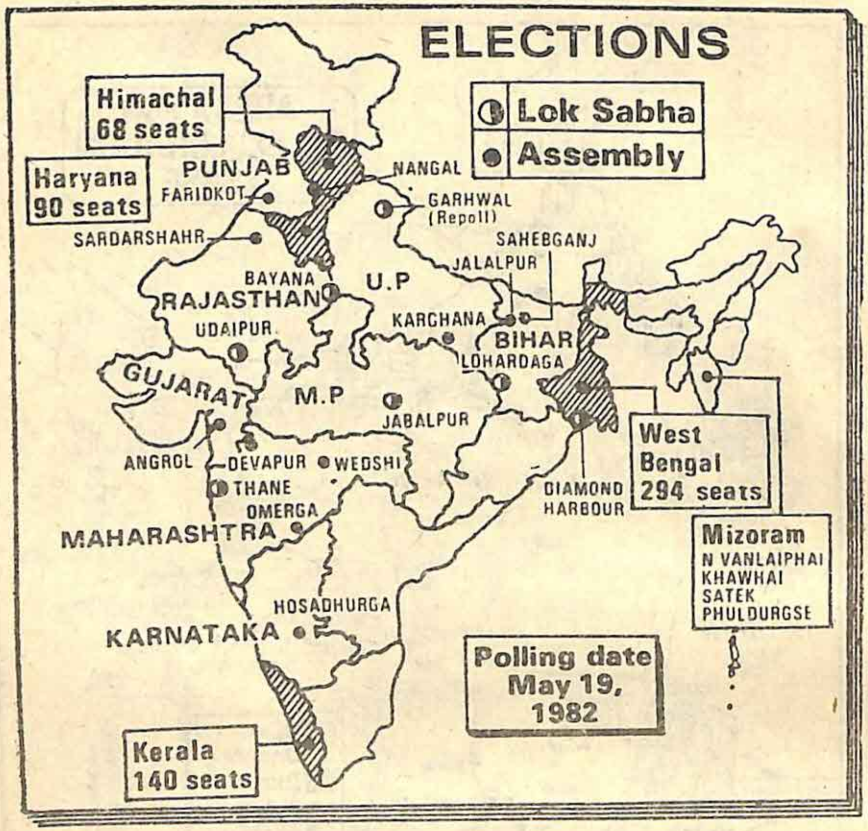


Fig. 22. Map—Elections, May 1982

**Filmstrips**

A filmstrip is a series of related still photographs on a single roll of processed film. Taken together, the separate pictures present the same process or product learning in a step by step fashion. Most filmstrips are 35 millimeter. The average number of single pictures on a filmstrip is thirty-five, although the number can vary from ten to one hundred. They may be produced in black and white or colour and are sometimes accompanied by a sound track which carries narration, music and sound effects.

A filmstrip allows for student participation either during the actual showing or by shutting it off at intervals to engage in discussion. Unlike the motion picture, the image can be retained on the screen as long as desired. It is inexpensive, small and compact. The filmstrip projector is a very small machine which can be operated by the teacher.

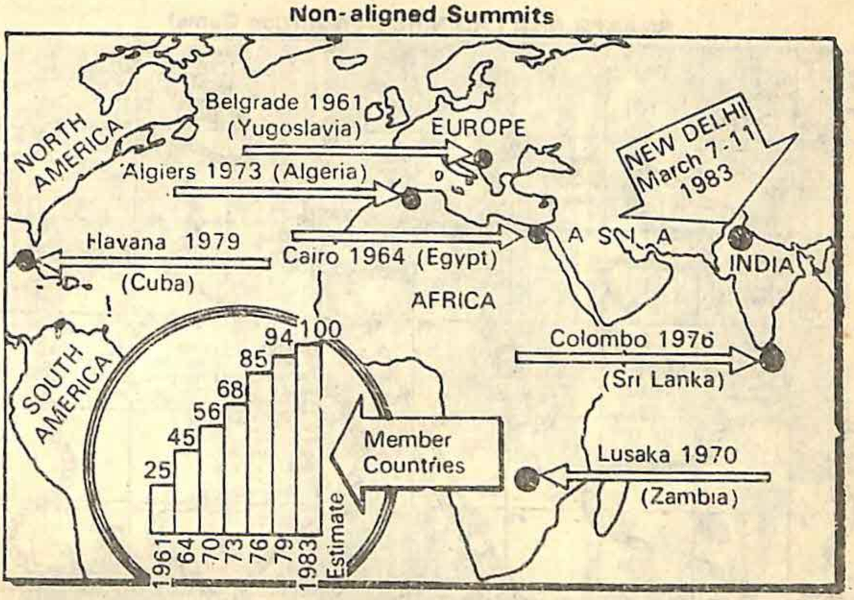


Fig. 23. Map—Non-Aligned Summits

## Rodio, Fims and Televison

They are excellent modes of education because of their vast potential. They are being used in a big way in education in the developed as well as developing countries. A detailed discussion regarding them appears elsewhere in the book.

## The gramophone

The gramophone as an aid is useful. It is possible to bring music, addresses, textual materials and particularised instructional lessons into the classroom just as effectively as it is possible through radio. The teacher can utilize gramophone records for teaching good pronunciation, good speech and correct language. Every school should have a set of linguaphone records to teach language correctly.

### *Contributions of Gramophone to Learning*

(i) *Good addresses, songs, recitations can be used when they are wanted*: They can be used at any time and for any length of time—short, long or medium. They can be used at the psychological i.e., suitable moment when they are most needed and most effective in aiding instruction.

(ii) *Records can be played more than once*: The radio programme is played and heard only once, but the same phonograph record can be played and heard again and again.

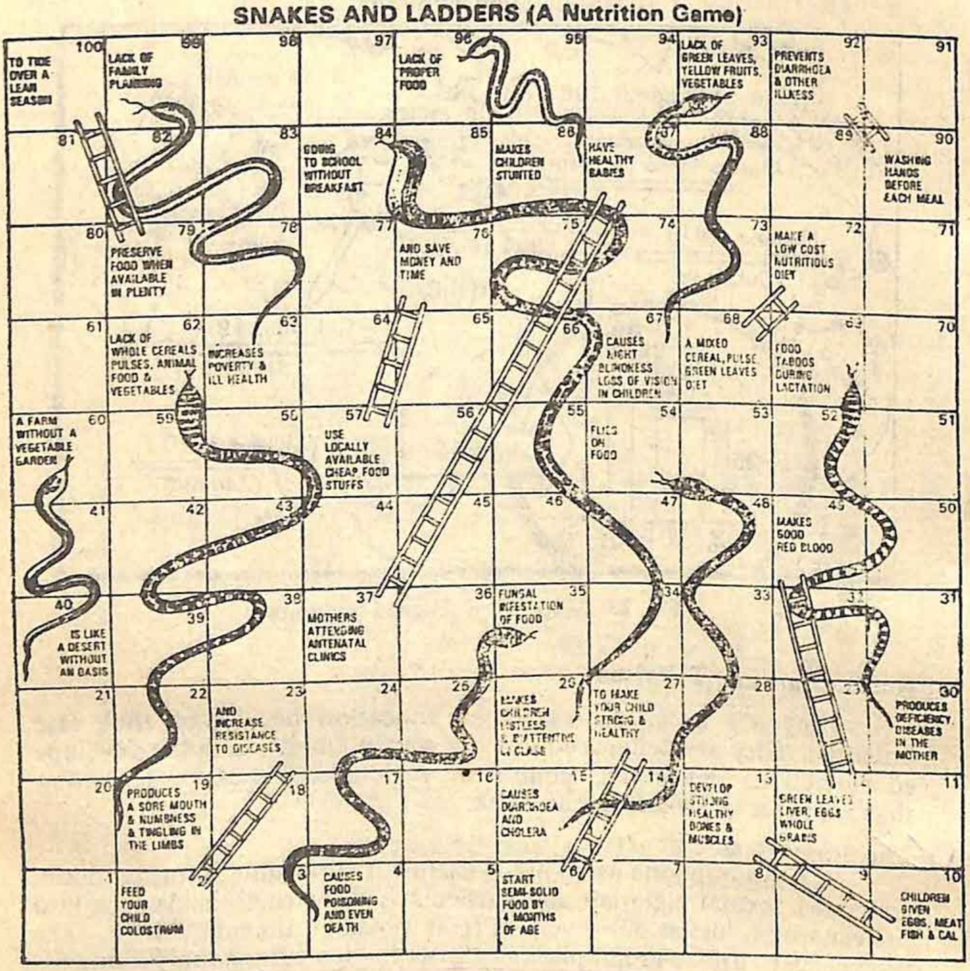

SNAKES AND LADDERS (A Nutrition Game)
TO TIDE OVER A LEAN SEASON
LACK OF FAMILY PLANNING
LACK OF PROPER FOOD
LACK OF GREEN LEAVES, YELLOW FRUITS, VEGETABLES
PREVENTS DIARRHOEA & OTHER ILLNESS
GOING TO SCHOOL WITHOUT BREAKFAST
MAKES CHILDREN STUNTED
HAVE HEALTHY BABIES
WASHING HANDS BEFORE EACH MEAL
PRESERVE FOOD WHEN AVAILABLE IN PLENTY
AND SAVE MONEY AND TIME
MAKE A LOW COST NUTRITIOUS DIET
LACK OF WHOLE CEREALS PULSES, ANIMAL FOOD & VEGETABLES
INCREASES POVERTY & ILL HEALTH
CAUSES NIGHT BLINDNESS LOSS OF VISION IN CHILDREN
A MIXED CEREAL, PULSE, GREEN LEAVES DIET
FOOD TABOOS DURING LACTATION
A FARM WITHOUT A VEGETABLE GARDEN
USE LOCALLY AVAILABLE CHEAP FOOD STUFFS
FLIES ON FOOD
MAKES GOOD RED BLOOD
IS LIKE A DESERT WITHOUT AN OASIS
MOTHERS ATTENDING ANTENATAL CLINICS
FUNGAL INFESTATION OF FOOD
AND INCREASE RESISTANCE TO DISEASES
MAKES CHILDREN LISTLESS & INATTENTIVE IN CLASS
TO MAKE YOUR CHILD STRONG & HEALTHY
PRODUCES DEFICIENCY DISEASES IN THE MOTHER
PRODUCES A SORE MOUTH & NUMBNESS & TINGLING IN THE LIMBS
CAUSES DIARRHOEA AND CHOLERA
DEVELOP STRONG HEALTHY BONES & MUSCLES
GREEN LEAVES LIVER, EGGS WHOLE GRAINS
FEED YOUR CHILD COLOSTRUM
CAUSES FOOD POISONING AND EVEN DEATH
START SEMI-SOLID FOOD BY 4 MONTHS OF AGE
CHILDREN GIVEN EGGS, MEAT FISH & CAL

Fig. 21. Picture—Snakes and Ladders; A Nutrition Game

(iii) *The teacher knows exactly what the record contains:* He can prepare his group well for listening.

(iv) *Records are quite cheap.*

(v) *The school dramatic club can also make use of gramophone records for songs, dances, and background music effects.*

**Tape-Recorder**

The tape-recorder is proving a great educational benefit in the schools which can afford it. It is used for many purposes:

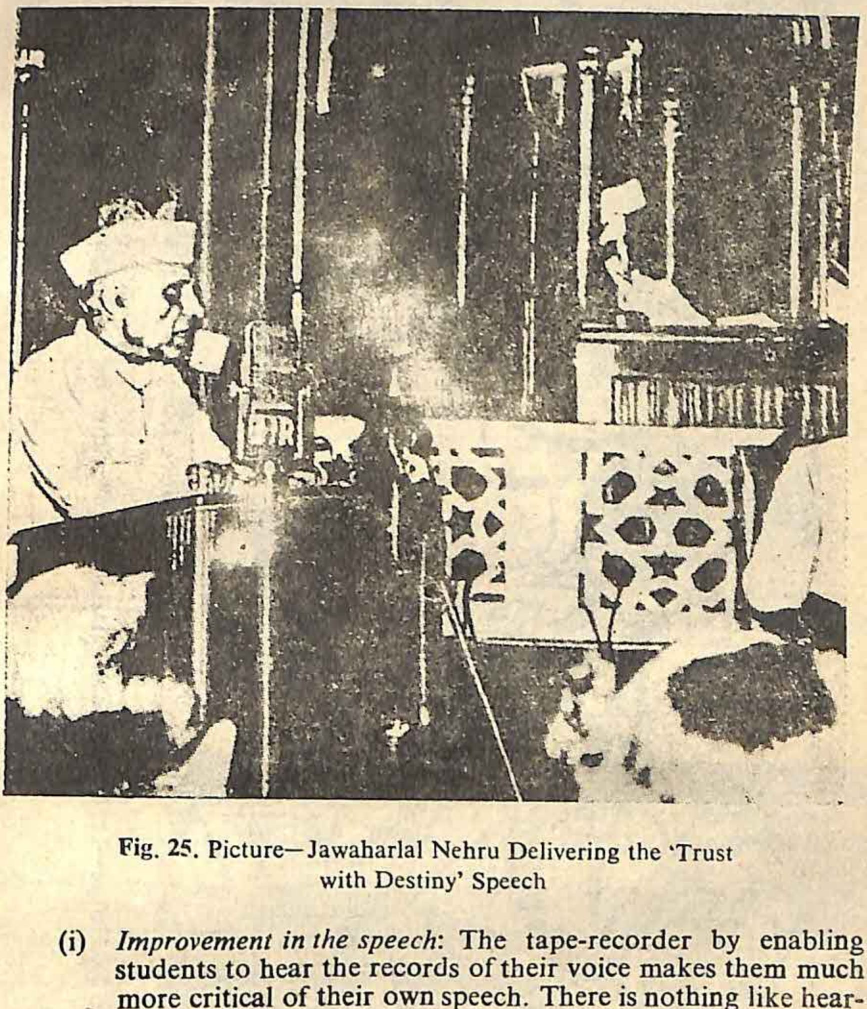


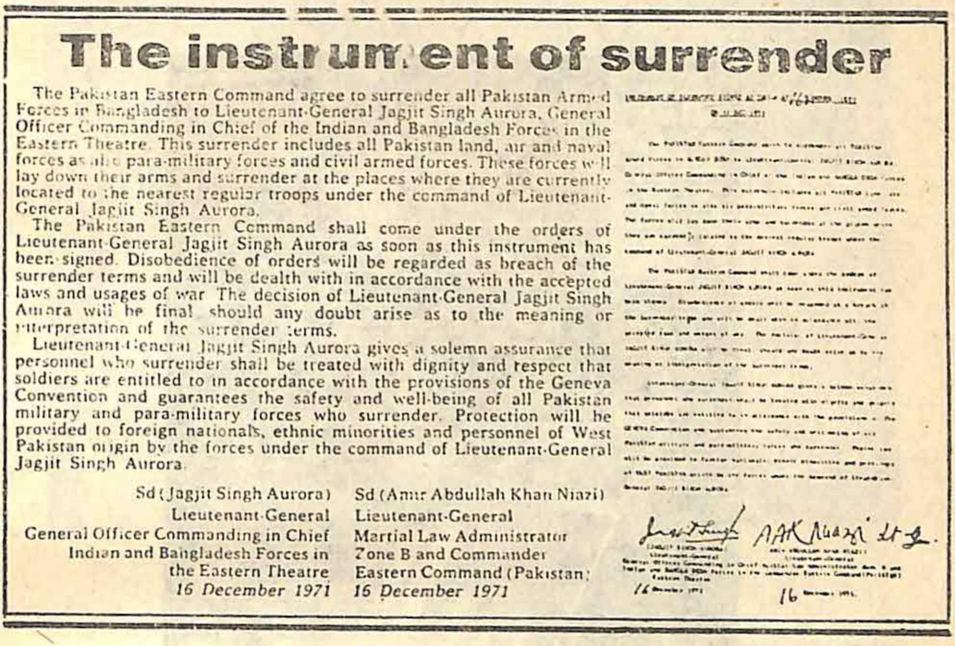
Fig. 25. Picture—Jawaharlal Nehru Delivering the 'Trust with Destiny' Speech

(i) *Improvement in the speech*: The tape-recorder by enabling students to hear the records of their voice makes them much more critical of their own speech. There is nothing like hearing how one sounds to others to realize the possibility of improvement in articulation, diction, enthusiasm, and organization of matter. Records are equally valuable in enabling him to judge the evidence of his progress. Such before-and-after recordings can be used effectively in speech improvement, vocal and instrumental music, foreign language classes, and drama groups.

(ii) *Learning of foreign languages*

(iii) *Learning of music*: Learners can record their performance and then discuss their deficiencies with the teacher. They can have

Fig. 26. Picture—Lt. Gen. A.A.K. Niazi Signing the Surrender Documents in Dhaka



## The instrument of surrender

The Pakistan Eastern Command agree to surrender all Pakistan Armed Forces in Bangladesh to Lieutenant-General Jagjit Singh Aurora, General Officer Commanding in Chief of the Indian and Bangladesh Forces in the Eastern Theatre. This surrender includes all Pakistan land, air and naval forces as also para-military forces and civil armed forces. These forces will lay down their arms and surrender at the places where they are currently located to the nearest regular troops under the command of Lieutenant-General Jagjit Singh Aurora.

The Pakistan Eastern Command shall come under the orders of Lieutenant-General Jagjit Singh Aurora as soon as this instrument has been signed. Disobedience of orders will be regarded as breach of the surrender terms and will be dealth with in accordance with the accepted laws and usages of war The decision of Lieutenant-General Jagjit Singh Aurora will be final should any doubt arise as to the meaning or interpretation of the surrender terms.

Lieutenant-General Jagjit Singh Aurora gives a solemn assurance that personnel who surrender shall be treated with dignity and respect that soldiers are entitled to in accordance with the provisions of the Geneva Convention and guarantees the safety and well-being of all Pakistan military and para-military forces who surrender. Protection will be provided to foreign nationals, ethnic minorities and personnel of West Pakistan origin by the forces under the command of Lieutenant-General Jagjit Singh Aurora.

Sd (Jagjit Singh Aurora)
Lieutenant-General
General Officer Commanding in Chief
Indian and Bangladesh Forces in
the Eastern Theatre
*16 December 1971*

Sd (Amir Abdullah Khan Niazi)
Lieutenant-General
Martial Law Administrator
Zone B and Commander
Eastern Command (Pakistan)
*16 December 1971*

Fig. 27. Picture—The Instrument of Surrender

SOUTH ASIAN REGIONAL COOPERATION
MEETING OF FOREIGN MINISTERS

Fig. 28. Picture—South Asian Regional Co-operation Meeting of Foreign Ministers

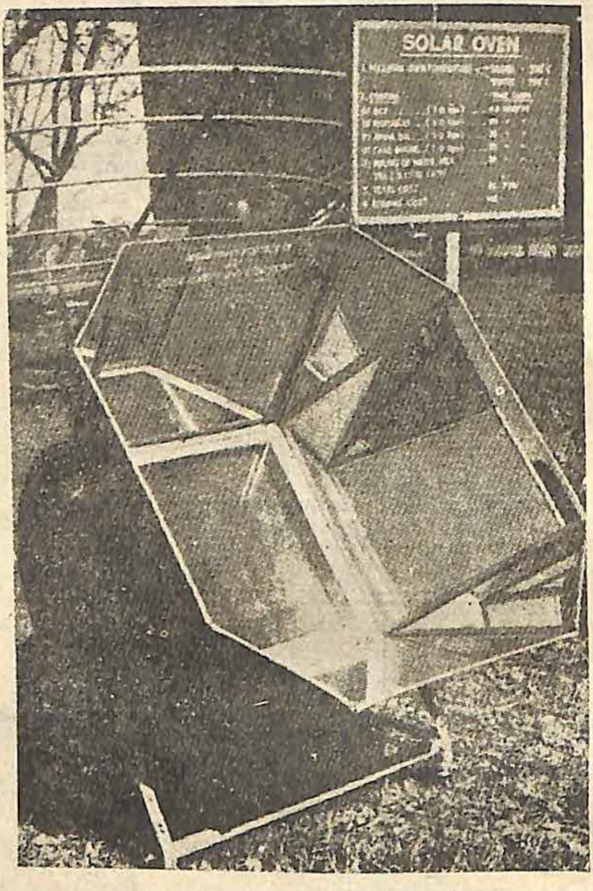


Fig. 29. Picture—Solar Oven

records of their own performances and of an expert's performance and these can be played over and over again until their own defects are completely removed.

(iv) *Replaying speeches*: To a school gathering for example, an assembly that is important can be recorded and then repeated as and when desired.

(v) *Class discussions and lectures* if recorded can provide a substantive basis for second thoughts about what was said and how it was said.

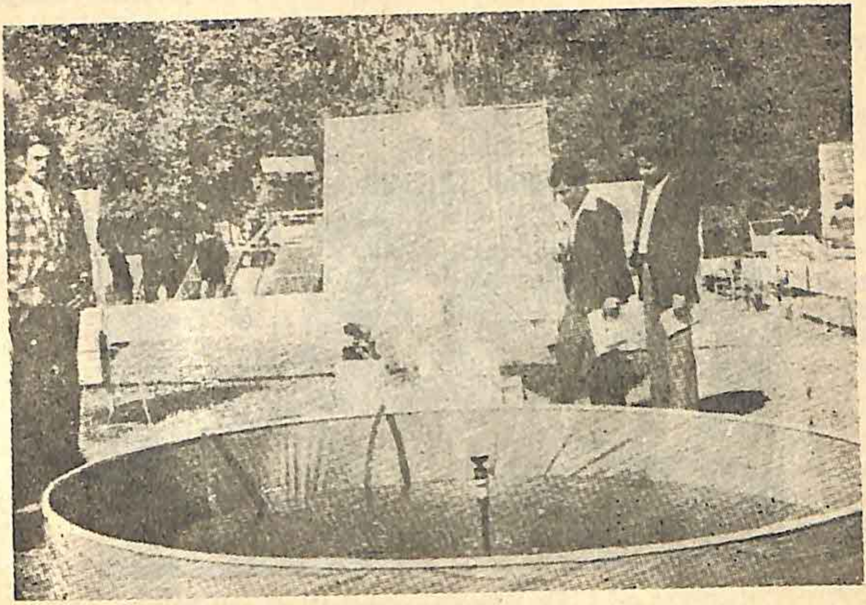


Fig. 30. Picture—Solar Water-heating System

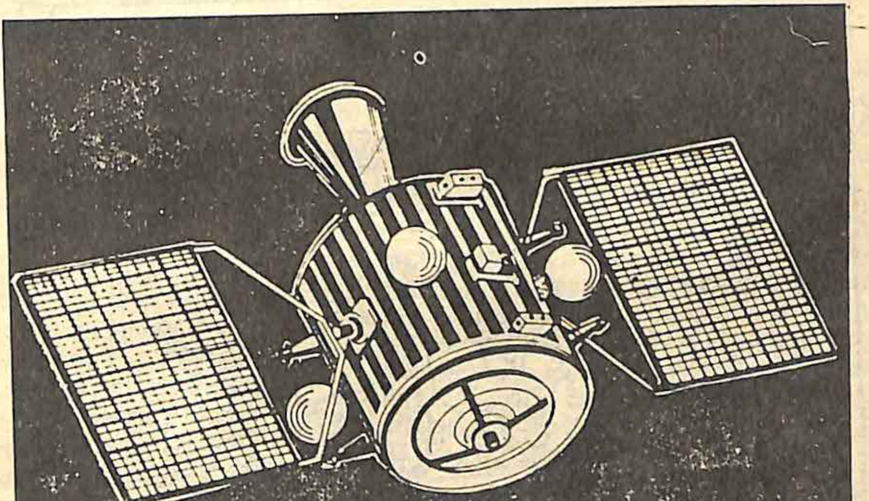
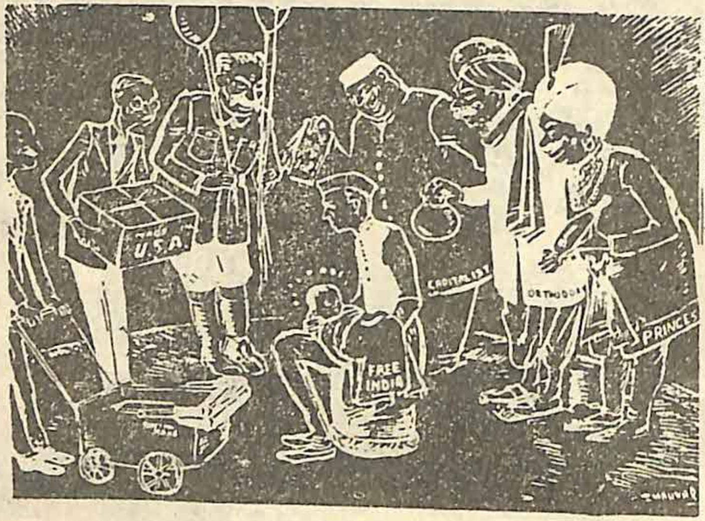


Fig. 31. Picture—An Impression of APPLE in Orbit



Courtesy Nehru Memorial Museum, Delhi

Fig. 32. Cartoon by Shanker—Heir to the Ages

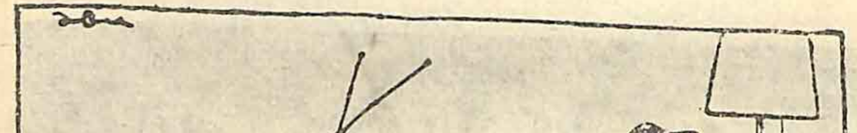

Daddy, if a man is married to a refrigerator and a scooter, isn't that bigamy?"

Fig. 33. Cartoon—Dowry, A Social Evil

(vi) *Replaying interviews* with workers, managers, voters, authors, officials—with any one who has special knowlege or positions of leadership—are recorded, this can bring the community into the classroom in a very interesting way.

(vii) *Rehearsals of school dramatizations* that are to be presented on the radio or on the school stage for the public. This will help in improving the programmes.

(viii) *Good radio programmes can be tape-recorded and replayed.* They can become treasured souvenirs.

(ix) *Record school assembly programmes* involving, perhaps, outside speakers, students, administrators, music, drama and panel discussions. Such recordings are ideal vehicles for retrospective criticism of the programmes for educational value and qualities of interest.

(x) *For improvement of the performance of children who are retarded in any field:* When they hear their own reading along with that of others, they tend to improve. The tape-recorder can let the pupils hear a variety of such voices as should influence their articulation, tempo and general delivery.

(xi) *Documentary recordings of social conditions and aspects of community living* are recorded. They can greatly help in extending pupil's general knowledge and insight.

## Newspapers

The daily newspapers can be effective teaching aids. They are full of information about the general, economic and social life of the people. They are, in fact, the minimum text-book for the study of current affairs. In spite of all the difficulties which they present for the immature reader, they all remain the indispensable source.

Modern teaching aims at correlating different subjects among themselves and also to daily life. Very often it has to relate certain topics in history, geography, arithmetic, science, economics, agriculture etc. with the daily life through the medium of the newspapers. It is a common experience that pupils find it difficult to understand such topics as discount, stocks and shares, government budget etc. The newspaper can be used to introduce lessons of this type. The newspaper can motivate the children for knowing the past events on reading about the current events. Since he is already interested in an election, or a recent invention, it becomes easy to lead him to the study of some former election and of the invention of a telephone or radio. Thus, newspapers serve as a wonderful motivational aid; it is the process of going from the known to the unknown, from the familiar to the unfamiliar.

Newspapers contain a reservoir of resources and illustrations. Contemporary occurrences help to clarify and exemplify the realities described in the text-books. They may be used to augment other instructional resources and as a means of sensitizing the class to the need for up-to-date information.

Newspapers can provide a point of contact and a means of approach. Since much of history, civics, geography and other contents are remote in time and place and also in the experience of pupils, current news happenings can serve as a starting point to stimulate interest. For social studies, newspapers are particularly significant. Many news items can vitalize a unit and tie the past with the present. They can represent an extension and exemplification of the major topics in the curriculum. A study of newspapers not only integrates the past with the present but reveals the relationship of specific events to the larger current scene.

Occurrences in the teaching of Hindi, Panjabi, English, in the growth of mathematics or even in science are reported in the newspapers. All these can vitalize instruction.

The teacher may reflect upon the maximum and minimum temperatures, the rainfall of various places, the weather forecast as well as the time of sunrise and sunset of a particular place. News regarding earthquakes, cyclones, tidal waves, new planets etc., may be brought to the notice of the pupils. The special issues of the newspapers—Republic Day issues, Industrial Supplements, etc., are full of information. The life sketches of great personalities, and the description of historical buildings and places can enrich the curriculum. Important articles appearing on Sundays are also useful. The special features, the editorials, the cartoons, the advertisements can enlighten the students.

The puplis in the higher classes may add a number of new words, phrases and idioms to their vocabulary. Passages may be set to them out of a newspaper for summarizing.

Newspapers help in closing the gap between information contained in books and changing developments of the world. With changes occurring as rapidly as they do in the dynamic world of today the text-books are likely to become obsolete in terms of changing conditions. The only way the citizen of today can keep himself up-to-date is to develop and maintain a continuing interest in current affairs as reported via the various news media.

Newspapers are filled with affairs, ephemeral and permanent, trivial and important. There are incidents and scandals merely sensational and of passing interest. The teacher has to be careful in selecting suitable material to be used by the pupils.

Movements, trends, ideas and changes in politics, international relations, and labour are important. The space age, with inventions, discoveries, research and new developments in industries and significant scientific progress is always of interest to the students. Sports have become so much a part of modern life that this phase of our society is important in the life of a youth. The material selected should be readable and related to the objectives of the different grade levels.

### *Using newspapers*

Different procedures may be adopted for dealing with newspapers:

1. Daily discussion of new topics.
2. News bulletin board.
3. News map.
5. Use of a variety of activities like panel discussion; round-table discussions; debates, making charts, maps, graphs; keeping scrapbooks of news, stories, picture puzzles, drawing cartoons to illustrate news; dramatizing news events.

*Daily discussion of news topics:* Sometimes, the news topics are discussed in the morning assembly. At the beginning of each school day, children report news items. Happenings close to the children, however, trivial they seem, have value for discussion. They usually are details of living and working together. As children advance in age and ability, the collection of news may become of general interest.

It is the duty of the teacher to help the child develop his powers of critical thinking and his ability to discriminate between significant news and the sensational. Without the guidance of the teacher, children are likely to report the sensational news like murders, robberies etc. It is for the teacher to help children evaluate news stories in terms of the number of persons affected by the event and the reasons why it received the attention it did.

It is necessary to build the child's interest in news to the extent that the child voluntarily bring news clippings whenever he finds one which he feels is worthwhile to bring to school. The teacher's role in this respect is one of leadership, encouragement and example.

In dealing with controversial issues, every effort should be made to develop the scientific approach to problem solving and the handling of various issues. Teachers have to approach such problems in a spirit of reasonableness. An objective point of view, sound judgment and proper guidance are most essential in any discussion. In teaching controversial issues, the teacher has a special responsibility to help children develop habits of critical judgment and open-mindedness, to evaluate sources of information, and to appraise the soundness of facts presented.

*News bulletin board*: News bulletin board may be used for displaying interesting news pictures and news stories. The display may contain news of local interest, news of complex national and international problems, even jokes for variety.

*News map*: A large world map is placed on the bulletin board with sufficient space around it to post clippings, pictures, charts etc.

Coloured string or narrow strips of paper may then be used to connect the news story with the location of spot where the event occurred.

*Panel discussion*: A selected group of pupils, four to eight, and a chairman may present a previously prepared subject before an audience. After the presentation, the remainder of the class could ask questions. Clarify points or add to what the panel has said. Members of the group may raise questions, or express their opinions. At the close of the discussion, the chairman summarizes the discussion, weaving the various threads into an integrated whole.

*Debate*: Two groups of pupils present arguments, for and against, a given proposition. The opposing sides are well balanced in intellectual ability. The proposition is usually the solution to a problem rather than the problem itself. After both sides have determined the issues, they select and present the evidence that will prove the issue true or false. When these have been presented, both teams refute the opposition's main points.

*Charts, maps and graphs*: Charts, maps, and graphs can help to show steps in an event that led to a crisis or route of a recent air flight of importance.

*Scrapbooks of news, stories or pictures*: Collection of news clippings is also a useful activity. Careful selection of articles in the scrapbook will allow the pupils to follow the development of the news story as a continuing basis.

*Cartoons*: Cartoons dealing with an election campaign, safety or health habits, good citizenship etc. can provide a good deal of interest. This procedure can be used with older children. The teacher should avoid having children draw cartoons which might be offensive to individuals or groups.

*Dramatizing*: Items such as festivals, meetings, conferences, negotiations, if dramatized, can create a good deal of interest.

### Reference Books

Various reference books—the encyclopaedias, dictionaries, authoritative and standard works, year books, government reports—can prove a very effective aid in learning. Text-books need to be supplemented with additional material. Some good students might like to go deep into a particular subject. For them extra reading is indispensable.

For the success of all the new methods of teaching, it is necessary that the pupils know how to consult reference books, how to sift out the relevant information for the preparation of assignments. The teacher should guide the pupils in the use of reference books and the index.

### Dramatization

Dramatization as an aid can be used with effect in nearly all subjects of the curriculum; history, geography, civics, languages and so on. It is equally effective from the lowest to the highest level of education. It provides scope for expression and imagination, sharpens learning, appeals to emotions and removes complexes. It creates interest and exercises initiative and originality of the children. It teaches incidentally and leaves deep impression on the young minds. It teaches voice culture, proper intonation and pronunciation, provides opportunity for planning, organization and executing a project.

Dramatization has immense educational potentialites. It is said that learning takes place best in an emotional situation and dramatization provides for such situation. The emotional catharsis provided in dramatization helps to maintain mental balance. Dramatization makes teaching a colourful, lively and joyous activity.

Dramatization means reconstructing of significant experiences—it is the attempt to transcend the barrier of time and place and relive the experience concerned. The customs, the language, and the mannerisms of the period can be brought out in the dramatization, giving an atmosphere and reality to the study. A child dramatizing a character has to "feel" like the character and to a degree he must become the character. Thus, the pupils assimilate the essential facts by playing the different characters and by reconstructing the events. Those, who do not directly participate in dramatization but witness it get into the spirit and in case of successful acting, they are also carried away with the characters. Thus, dramatization helps both participants and observers. Not only that, there is such a large variety of jobs to be attended to, for example, a stage is to be built; lighting and seating arrangements are made; a mike procured; costumes made or collected; invitation cards printed and distributed. For all this, the co-operation of a large number of students from different classes is essential. All this is good education.

### *Kinds of Dramatization*

Dramatizations may vary from the spontaneous acting of roles to the carefully rehearsed full length play complete with costumes and scenery. Between these extremes are such other forms as puppet shows, pageants, pantomimes, tableaux, dialogues.

*The play*: The play is carefully rehearsed by school children or adults and staged using proper costumes and stage setting. Every participant memorizes his or her predetermined part in the story and performs accordingly.

*The pageant*: In pageant more importance is paid to setting and action and less to speech. It has no place in the classroom as it needs a great deal of time, energy and equipment.

*The pantomime*: In a pantomime the participants express themselves only through bodily action usually to the accompaniment of music. No announcement is made to give the audience any clue to what is presented.

Pantomime can be performed in the classroom in ordinary dress. Pantomimes are particularly valuable for shy children.

*The tableau*: The tableau is an acted play without words. It is very effective in representing an emotional theme. It is also presented, generally, without any announcement and the audience guesses what is being performed.

*Puppetry*: Puppetry has certain distinct advantages. It can present ideas with extreme simplicity—without elaborate scenery or costume—yet quite effectively. Distracting details are eliminated, thus, attention is focussed on the dramatized experience itself. Puppetry is specially suited to the types of drama not easily presented with human actors, adaptation of classic plays, visual interpretation of music, development of fantasy and experiments in satire.

*Important points for successful dramatization*

(i) *The teacher should not dominate the show*: The teacher should only direct and guide from the background. Children should be encouraged to participate.

(ii) *Characters should be chosen as appropriately as possible*: Those who take part in the play may be chosen by the class, but the teacher must take care that the same pupils do not monopolize all the activities.

(iii) *There is no need for stage setting and scenery in a classroom play*: The chalkboards can present forests and a cleared space can become a market place. The emphasis should be placed on action, gestures, expression, voice and interpretation rather than on clothes, scenery and setting.

(iv) *Dramatization must be followed up*: After an outstanding event has been dramatized by a class, the most important part of the work follows. Questions wisely chosen by the teacher should open up wide discussion. The dramatization may be made the central point of the discussion.

## The chalkboard

The chalkboard is one of the most valuable devices for making instruction concrete and understandable. It is the necessary equipment of a classroom and a handy apparatus at the hands of a teacher. When it is used properly, it can set standards of neatness, accuracy and speed. An illustration drawn on the chalkboard during a lesson can restore the attention of the class. Many vague statements can be clarified by using the chalkboard for sketches, outlines, diagrams, directions and summaries. The chalkboard, used as the occasion demands, throughout a lesson, enables children to see what they have heard. This can connect the *aural* and the *visual* sensations and to a great extent, helps in learning.

The chalkboard can be a means of motivation. It can be used for recording the progress and status of pupil-teacher planning.

It is valuable because of its size and location also as it can be used advantageously for group instruction. It is also economical because it can be erased and used repeatedly.

The chalkboard offers many educational opportunities in all fields—curricular and co-curricular—in connection with the presenting of facts, principles, processes and procedures; making assignments of lessons and individual responsibilities, listing questions, problems, sources, and references; giving directions, examinations and tests, practising individual drill or creative work.

The chalkboard may become the medium through which group projects are worked out. Group projects in social studies, art, arithmetic, nature study, etc. can be planned, illustrated and summarized by means of chalkboard techniques.

In our country chalkboards are mostly black, but in the U.S.A. and U.K. the black colour has given place to either yellow or olive green. The use of colour in America for the so-called blackboard has given rise to the new term—the chalkboard. Researches conducted by National Institute of Industrial Psychology in America have shown that a blue chalk on a yellow board causes less strain on children's eyes and adds to the general cheerfulness of the classroom. The Advisory Council on Education in Scotland suggests that yellow chalk on an olive green surface gives the most satisfactory results.

### *Types of chalkboard*

1. *The ordinary chalkboard held by an easel*: This type of chalkboard is useful for the teaching of art subjects in a small class, but it is not suitable for mathematics and science.

2. *The roller type chalkboard with a mat surface*: This type of chalkboard is very common in secondary, modern and infant schools in Great Britain. If this type of board is used, a portion of the board can be lined or square marked according to needs to provide for the teaching of such subjects as handwriting, elementary arithmetic and higher mathematics.

3. *The magnetic chalkboard*: The magnetic board is made of steel on which magnets can be fixed. This board is very useful in the primary school when children fix something on it as an exercise in the revision of a lesson, their creative impulse is partially aroused. They find this an interesting activity. This board is very useful for the teacher also who can promptly fix pictures, charts, etc., on it with the help of magnets.

### The bulletin board

The bulletin board is one of the audio-visual aids of great educational value. It can serve as a perpetual magazine of the class or the school designed to give the pupils information of direct concern to them and tap their curiosity and desire for knowledge. It can provide a suitable place for the display of all kinds of creative work of students. It can serve as a place for the display of photographs, interesting news, pictures and news stories, cartoons, newspaper and magazine clippings, small samples of products in connection with specific lessons or topics of current interest, even jokes for variety. If made a centre of attraction, it can provide a suitable place for the pasting of announcements, assignments, distinctions and achievements. It provides the best opportunities to children to work as a group. The classroom atmosphere gains a new momentum through this board.

The bulletin board can provide an added source of interest when a large world map is placed on it with sufficient space around it to pin clippings, pictures, charts and so on. Coloured string or narrow strips of paper may then be used to connect the new story with the location of spot where the event occurred.

Fig. 34 shows relevant news items, regarding Sri Lanka.

*Using the bulletin board effectively*

(i) The bulletin board should be placed in a place in the room from which children pass regularly. Let it be placed near the doorway since the children may stop for a moment or two on their way in and out of the classroom.

(ii) The display should be organised in an attractive manner by dividing the board into sections titled, "local news," news of our country," "science in the news," "sports in the "news," "our home town in the news" etc., each item placed under a suitable section.

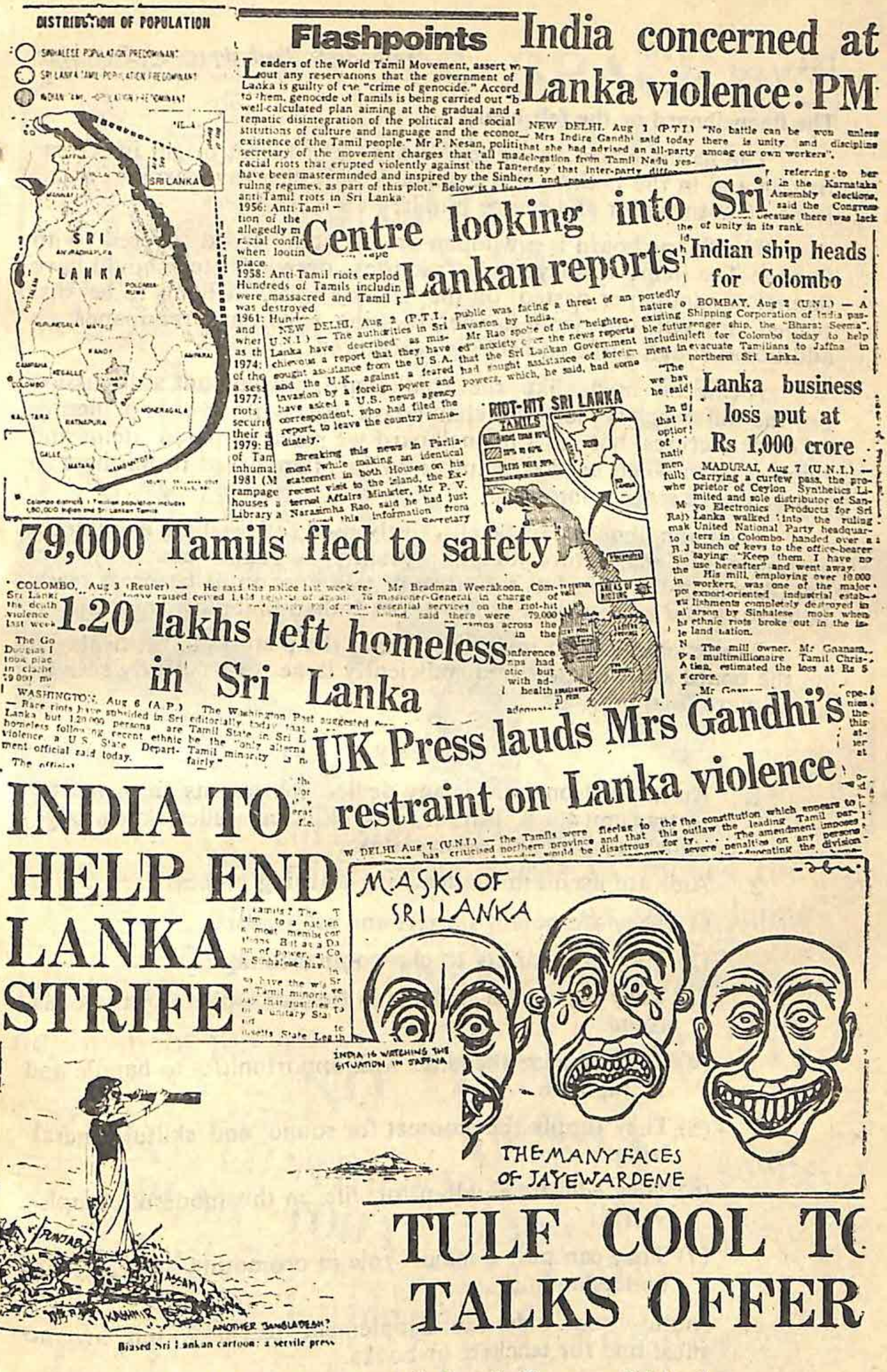
(iii) Crowding of display materials should be avoided.

(iv) To make the pupils interested in reading the news-items, we should give due thought to the selection of the items, to the physical arrangement, to orderliness and design, to the use of eye-catching leads such as "Stop, look and think."

(v) News clippings collected by the pupils may also be displayed on the bulletin board. The pupils may be given responsibility for collection and display of appropriate material in connection with certain specific lessons.

(vi) The material displayed should be changed at reasonable intervals.

(vii) The responsibility for editing the board should be placed on one person or a bulletin board committee.


DISTRIBUTION OF POPULATION
SINHALESE POPULATION PREDOMINANT
SRI LANKA TAMIL POPULATION PREDOMINANT
INDIAN TAMIL POPULATION PREDOMINANT
SRI LANKA
SRI LANKA
ANURADHAPURA
POLONNARUWA
KURUNEGALA
MATALE
KANDY
AMPARAI
COLOMBO
KEGALLE
BADULLA
MONERAGALA
RATNAPURA
GALLE
MATARA
HAMBANTOTA
Colombo district : Tamilian population includes 1,80,000 Indian and Sri Lankan Tamils
RIOT-HIT SRI LANKA
TAMILS
AREAS OF RIOTING
MASKS OF SRI LANKA
THE MANY FACES OF JAYEWARDENE
INDIA IS WATCHING THE SITUATION IN JAFFNA
PUNJAB
ASSAM
KASHMIR
ANOTHER BANGLADESH?

**Flashpoints**

Leaders of the World Tamil Movement, assert w… out any reservations that the government of … Lanka is guilty of the "crime of genocide." Accord… to them, genocide of Tamils is being carried out "b… well-calculated plan aiming at the gradual and s… tematic disintegration of the political and social … stitutions of culture and language and the econo… existence of the Tamil people." Mr P. Nesan, politi… secretary of the movement charges that 'all ma… racial riots that erupted violently against the Ta… have been masterminded and inspired by the Sinh… ruling regimes, as part of this plot." Below is a li… anti-Tamil riots in Sri Lanka:

1956: Anti-Tamil … tion of the … allegedly m… racial confli… when lootin… place.

1958: Anti-Tamil riots explod… Hundreds of Tamils includin… were massacred and Tamil … was destroyed.

1961: Hun… and … wher… as th…

1974: … of th… a ses…

1977: … riots … securi… their …

1979: … of Tam… inhuma…

1981 (M… rampage … houses … Library a…

**India concerned at Lanka violence: PM**

NEW DELHI, Aug 1 (P.T.I.) — Mrs Indira Gandhi said today that she had advised an all-party delegation from Tamil Nadu yesterday that inter-party diffe…

"No battle can be won unless there is unity and discipline among our own workers".

… referring to her … in the Karnataka Assembly elections, said the Congress … because there was lack of unity in its rank.

**Centre looking into Sri Lankan reports**

NEW DELHI, Aug 2 (P.T.I., U.N.I.) — The authorities in Sri Lanka have described as mischievous a report that they have sought assistance from the U.S.A. and the U.K. against a feared invasion by a foreign power and have asked a U.S. news agency correspondent, who had filed the report, to leave the country immediately.

Breaking this news in Parliament while making an identical statement in both Houses on his recent visit to the island, the External Affairs Minister, Mr P. V. Narasimha Rao, said he had just … this information from … Secretary …

… public was facing a threat of an invasion by India.

Mr Rao spoke of the "heightened" anxiety over the news reports that the Sri Lankan Government had sought assistance of foreign powers, which, he said, had some … portedly … nature o… existing … ble futur… includin… ment in…

"The … we hav… he said…

In t… that I… option… of … natio… men… fully… whe…

**Indian ship heads for Colombo**

BOMBAY, Aug 2 (U.N.I.) — A Shipping Corporation of India passenger ship, the "Bharat Seema", left for Colombo today to help evacuate Tamilians to Jaffna in northern Sri Lanka.

**Lanka business loss put at Rs 1,000 crore**

MADURAI, Aug 7 (U.N.I.) — Carrying a curfew pass, the proprietor of Ceylon Synthetics Limited and sole distributor of Sanyo Electronics Products for Sri Lanka walked into the ruling United National Party headquarters in Colombo, handed over a bunch of keys to the office-bearer saying: "Keep them. I have no use hereafter" and went away.

His mill, employing over 10,000 workers, was one of the major export-oriented industrial establishments completely destroyed in arson by Sinhalese mobs when ethnic riots broke out in the island nation.

The mill owner, Mr Gnanam, a multimillionaire Tamil Christian, estimated the loss at Rs 5 crore.

Mr Gnan…

**79,000 Tamils fled to safety**

COLOMBO, Aug 3 (Reuter) — … Sri Lank… today raised … the death … violence … last week.

He said the police last week received 1,… reports of arson … of … mis-…

Mr Bradman Weerakoon, Commissioner-General in charge of essential services on the riot-hit island, said there were 79,000 … camps across the … in the …

The Go… Douglas I… took plac… in clashe… 79,000 m…

… conference … camps had … etic but … with adequate health …

**1.20 lakhs left homeless in Sri Lanka**

WASHINGTON, Aug 6 (A.P.) — Race riots have subsided in Sri Lanka but 1,20,000 persons are homeless following recent ethnic violence, a U.S. State Department official said today.

The official …

The Washington Post suggested … editorially today that a … Tamil State in Sri L… be the "only alterna… Tamil minority … fairly"

**UK Press lauds Mrs Gandhi's restraint on Lanka violence**

… W DELHI, Aug 7 (U.N.I.) — the … Press has criticised … the Tamils were fleeing to … northern province and that … would be disastrous … the constitution which appears to … this outlaw the leading Tamil party … The amendment imposes severe penalties on any persons advocating the division …

**INDIA TO HELP END LANKA STRIFE**

… Tamils? The … aim to a nation … most membe… But as a … of power, a… Sinhalese hav… so have the w… Tamil minorit… way that justifies … in a unitary Sta… … itself's State Leg…

**TULF COOL TO TALKS OFFER**

Biased Sri Lankan cartoon: a servile press

Fig. 34. Display on Bulletin Board—Focus on Sri Lanka

### The flannelboard or the felt board

The flannelboard or the felt board is of recent origin in Great Britain and in the U.S.A. It is a valuable aid in many learning situations of both junior and senior pupils.

The flannelboard is a wooden or plywood board covered with flannel. The items displayed e.g. pictures, drawings etc., should have flannel or sandpaper pasted on the reverse side. If items to be displayed are cut out from flannel, blotting paper, and sandpaper, no additional rough-surfaced backing is required.

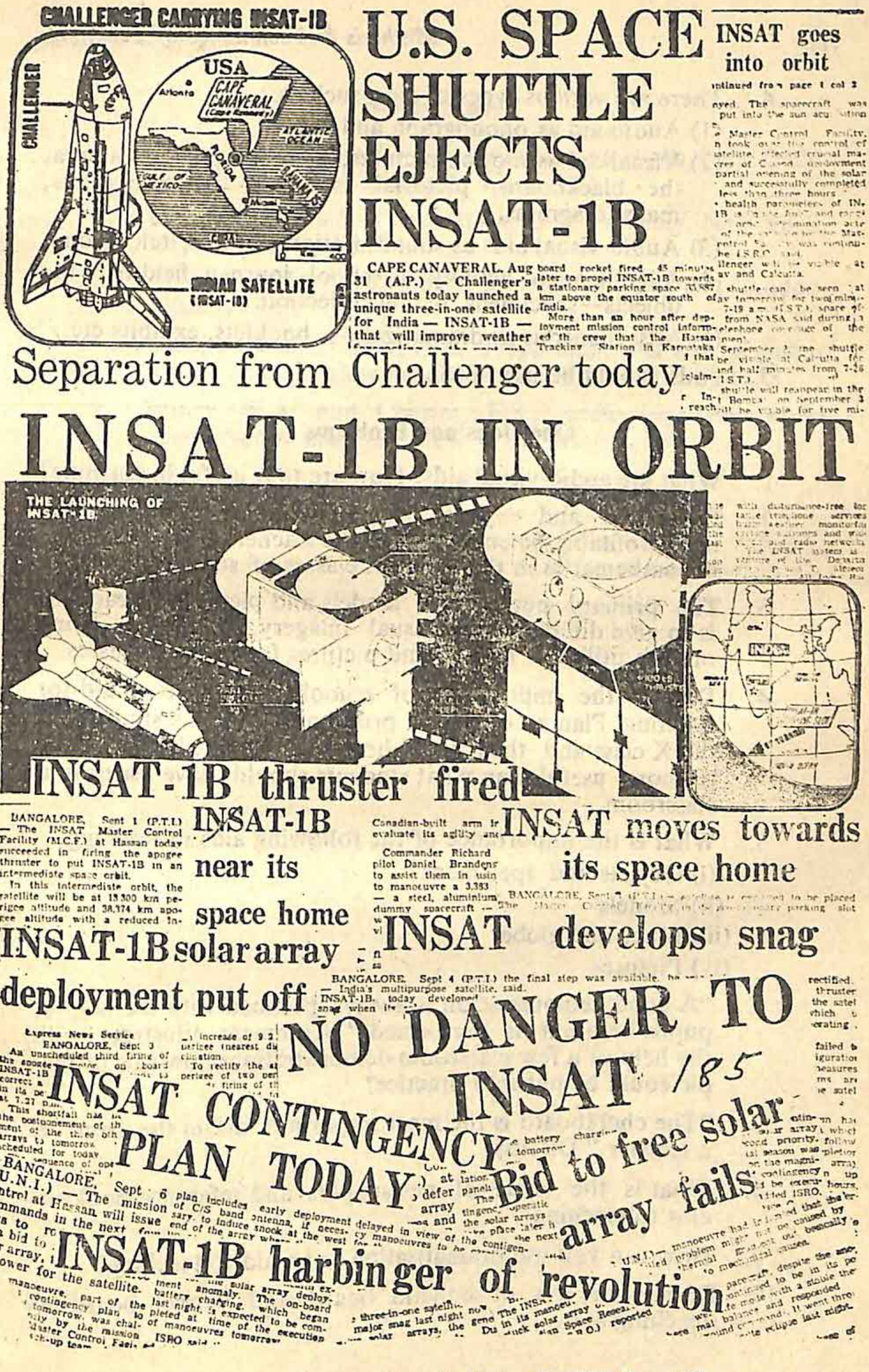
It can be used, like the chalkboard, throughout a discussion but the difference is that on a chalkboard we write words or figures or draw pictures, but on a flannelboard we place prepared items and remove them when needed. Pupils may be often asked to fix these to arouse their creative interest.

The flannelboard can be effectively used for teaching arithmetic, grammar, hygiene, nature study, geography, languages etc. If pictures are placed on the board as the story or talk goes on, it becomes really interesting and enjoyable. Fig. 35 shows Indian Statellite Insat-1B.

The teacher should make sure that the pictures to be displayed on the board are attractive and sufficiently large to be clearly seen by all who are listening.

### Summary

1. An instructional aid is any device that assists an instructor to transmit to a learner facts, skills, attitudes, knowledge, understanding and appreciation.
2. Aids are useful in the teaching-learning process.
   (1) They are potent starters and motivators.
   (2) They give variety to classroom techniques.
   (3) They provide a change in the atmosphere of the classroom.
   (4) They provide the child with opportunities to handle and manipulate.
   (5) They supply the context for sound and skilful generalizing.
   (6) They educate children for life in this modern complex world.
   (7) They can play a major role in promoting international understanding.
3. Audio-visual aids can supplement teaching, but are no substitute for teachers or books.


CHALLENGER CARRYING INSAT-1B
CHALLENGER
USA
Atlanta
CAPE CANAVERAL
ATLANTIC OCEAN
FLORIDA
GULF OF MEXICO
CUBA
INDIAN SATELLITE (INSAT-1B)
THE LAUNCHING OF INSAT-1B
INDIA

# U.S. SPACE SHUTTLE EJECTS INSAT-1B

CAPE CANAVERAL, Aug 31 (A.P.) — Challenger's astronauts today launched a unique three-in-one satellite for India — INSAT-1B — that will improve weather

board rocket fired 45 minutes later to propel INSAT-1B towards a stationary parking space 35,887 km above the equator south of India.

More than an hour after deployment mission control informed the crew that the Hassan Tracking Station in Karnataka

# INSAT goes into orbit

Continued from page 1 col 2

The spacecraft was put into the sun acquisition

Master Control Facility, took over the control of the satellite, effected crucial manoeuvres

partial opening of the solar and successfully completed less than three hours

health parameters of INSAT-1B

allenger will be visible at Bombay and Calcutta.

shuttle can be seen at Bombay tomorrow for two minutes 7-19 a.m. (I.S.T.), space officials from NASA said during a telephone

September 2, the shuttle be visible at Calcutta for and half minutes from 7-26 I.S.T.

shuttle will reappear in the Bombay on September 3 will be visible for five mi-

# Separation from Challenger today

# INSAT-1B IN ORBIT

# INSAT-1B thruster fired

BANGALORE, Sept 1 (P.T.I.) — The INSAT Master Control Facility (M.C.F.) at Hassan today succeeded in firing the apogee thruster to put INSAT-1B in an intermediate space orbit.

In this intermediate orbit, the satellite will be at 13,300 km perigee altitude and 38,374 km apogee altitude with a reduced in-

# INSAT-1B near its space home

Canadian-built arm to evaluate its agility and

Commander Richard pilot Daniel Brandenstein to assist them in using to manoeuvre a 3,383 — a steel, aluminium dummy spacecraft —

# INSAT moves towards its space home

# INSAT-1B solar array deployment put off

Express News Service

BANGALORE, Sept 3

An unscheduled third firing of the apogee motor on board INSAT-1B

increase of 9.2 perigee (nearest di

To rectify the perigee of two

This shortfall has the postponement of the ment of the three arrays to tomorrow scheduled for today

# INSAT develops snag

BANGALORE, Sept 4 (P.T.I.) — India's multipurpose satellite, INSAT-1B, today developed snag when its

the final step was available, he said.

rectified.

# NO DANGER TO INSAT

/85

# INSAT CONTINGENCY PLAN TODAY

BANGALORE, Sept 6 (U.N.I.) — The mission control at Hassan will issue commands in the next

plan includes early deployment of C/S band antenna, if necessary, to induce snook at the end of the array

delayed in view of the contingency manoeuvres to be

power for the satellite.

manoeuvre, part of the contingency plan to tomorrow, was chal-

battery charging, which began last night, is expected to be completed at time of the execution of manoeuvres tomorrow

ISRO said.

# Bid to free solar array fails

# INSAT-1B harbinger of revolution

three-in-one satellite major snag last night solar arrays, the

Fig. 35. Display on Flannelboard—Indian Satellite Insat-1B

4. There are various types of aids, such as:
   (1) Audio-aid as phonograph and radio.
   (2) Visual-aid as motion pictures, stereoscope, the camera, the blackboard, pictorial materials, representations, maps, diagrams.
   (3) Audio-visual aids as sound-motion pictures, television.
   (4) Aids through activity as school journey, field trip, the objects—specimens, model collection.
   (5) Miscellaneous as dramatization, booklets, exhibits etc.
5. Aids should be used properly.

### Questions and Problems

1. What are audio-visual aids? How are they useful in teaching?
2. Enumerate and explain the important teaching aids that may profitably be employed by the teacher of social sciences or mathematics in the different classes of school.
3. The primary purpose of models and pictures in teaching is to give difiniteness to visual imagery. Comment. Bring out the utility of models and pictures for primary classes.
4. Discuss the importance of school journeys as an aid for teaching. Plan an excursion programme for the students of the X class and then show how the knowledge so gained is more useful than what students should have learnt in a classroom.
5. What is the importance of the following aids in teaching:
   (i) Objects and specimens
   (ii) Models
   (iii) Maps and globe
   (iv) Pictures
6. "A good demonstration is always planned with the help of pupils before it is performed." Comment. Illustrate with the help of a few classroom demonstrations how this principle could be put into practice?
7. "The chalkboard is the most important aid in the hand of a teacher." Discuss.
8. What is the value of newspapers and reference books as aids to teaching?
9. How can you use dramatisation as an aid to teaching?
10. Discuss the use of bulletin board and flannel board as teaching aids.

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# 10

# TEACHING LESSONS

*What is a lesson plan—Why lesson-planning—Essentials of a lesson-plan—Knowledge lesson—Herbartian steps—Alternative scheme—The skill lesson—The appreciation lesson—Essentials of a well-delivered lesson—Critical observation of lessons—Summary—Questions and problems—Bibliography.*

> "A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who has no living traffic with his knowledge, but merely repeats his lesson to his students can only load their minds. He cannot quicken them. Truth not only must inform, but also must inspire. If the inspiration dies out, and the information only accumulates, then truth loses its infinity. The greater part of our learning in the schools has been waste because for most of our teachers their subjects are like dead specimens of once living things, with which they have a learned acquaintance, but no communication of life and love."
>
> —Tagore

A school is a formal agency of education. The classroom is a formal place where teachers and pupils meet—the former for teaching, and the latter for learning. Meetings between teachers and pupils should be occasions for learning, thinking and understanding. To achieve maximum advantages, it becomes imperative that educational activities be best planned and best conducted. The teacher should create learning situations and organize them in such a way that the child is motivated to know, to think and to do.

## What is a lesson plan

"A lesson plan," in the words of Lester B. Sands, "is actually a plan of action. It, therefore, includes the working philosophy of the teacher, her knowledge of philosophy, her information about and understanding of her pupils, her comprehension of the objectives of education, her knowledge of the material to be taught, and her ability to utilize effective methods." A lesson-plan points out what has already been done, in what direction the pupils should next be guided and helped and what work to be taken up immediately. "It is the teachers's mental and emotional visualization of the classroom experience as the plans it to occur." "It is in many ways the core, the heart of effective teaching."

A lesson-plan should tell very simply the story, the way the teacher intends, rightly or wrongly, to employ children for a given period: what she and they are going to do. This written "story" should show both sincerity and a plan—a flexible and informal plan.

The "story" of the intended lesson should, however, not look like a story. In one sense, the teacher is playing a role—possibly the chief role—in a performance (with no play-acting, of course!). The plan, therefore, should look more like a programme. There should be bold headings and smaller headings indicating: the different things that are to go on at different times, who are to do those things—(teacher or children or both), the instruments to be used, and a certain amount of, not every word, what is to be said.

Thus, a lesson-plan points out what has already been done, in what direction the pupils should next be guided and helped, and the immediate work to be taken up. It begins with goals of instruction and ends with a well-conceived means of arriving at those goals.

**Why lesson-planning**

Careful planning is the foundation of all good teaching from the first day to the last day of student teaching. The nature of the lesson-plan may change as the years go by, but planning should never stop.

Lesson-planning performs some specific functions as described below:

(i) It forces consideration of—goals and objectives, the selection of subject-matter, the selection of peocedure, the planning of activities, and the preparation of tests of progress.

(ii) It keeps the teacher on the track, ensure steady progress and a definite outcome of teaching and learning procedures.

(iii) It is essential for effective teaching. It requires the teacher to look ahead and plan a series of such activities and progressively modify children's attitudes, habits, information, and abilities in desirable directions.

(iv) It prevents waste. It helps the teachers to be systematic and orderly. It encourages good organisation of subject-matter and activities; prevents haphazard teaching.

(v) It helps the teacher to delimit the teaching field. It gives her an immediate impetus to realize the aims and objectives set, and initiates her on her educational adventure.

(vi) It encourages proper consideration of the learning process and the choice of appropriate learning procedures. She employs the best technique tc judge the outcome of instructions.

(vii) It serves as *check on un-planned curriculum*. It provides a sensible framework to help the work, directing along the lines of the syllabus at a suitable rate. The hierarchy of lessons becomes well-knit, inter-connected. Continuity is assured in the educative process. Needless repetition is avoided.

(viii) It gives the teacher greater *confidence* and, *therefore, greater freedom in teaching*. It can ensure that the teacher does not "dry up" or forget a vital point. It can remined him of the telling phrase, the apt quotation or the effective simile or illustration at the moment in the lesson. The teacher can enter the classroom without anxiety, ready to embark with confidence upon a job she understands and prepared to carry it to conclusion.

If hit-or-miss techniques are to be avoided in education, the task of education must be taken earnestly. It certainly entails hard work. "Yet it is potentially the most rewarding sort of professional work that a teacher can do, because in this planning, the teacher has the opportunity to use every bit of his skill, intelligence, ability and personality...in short, every opportunity to become a really fine teacher." Regardless of how long he has served the profession, no teacher should enter a classroom without a lesson-plan developed for that specific class. A teacher may teach a subject such as Social Studies for 25 years, but each year calls for new planning. Every subject takes a new meaning each year from (a) the new group of pupils to be served by it and (b) the constantly changing social setting which the school and all its work constitute partially.

**Essentials of a lesson-plan**

It is rather difficult to specify the essentials of a lesson-plan. An outline that serves one teacher best may not serve another at all. A safe statement to make is, "The plan which best serves the individual teacher is for him, at least, the best plan to use." In fact, successful teaching depends mainly upon two factors; a careful but flexible plan, and a teacher so secure in the plan that she feels free to change it as the lesson develops and the needs of the children require. The plan is to be used as a guide rather than as a rule of the thumb. The teacher should have the courage to depart from it when the needs of her children demand.

The pre-requisites for good lesson-planning are:

(i) The teacher must have mastery of and adequate training in the *topic* from which the subject-matter has been selected for a certain lesson. In the words of Yoakam and Simpson: "No teacher can map out a proposed unit or write even a single daily plan without knowing thoroughly the field in which he is working." When the teacher knows *what* of the lesson he can concentrate on *how* of it.

(ii) The teacher must know her children thoroughly. She must not only know the facts of Social Studies but also what part of Social Studies will be meaningful to her pupils and how to organise her material in a psychological rather than merely a logical fashion. She must understand her children's traits and interests in order to know how to plan for them.

(iii) The teacher must be fully conversant with new methods and techniques of teaching the subject.

(iv) There must be a grounding in the psychology of learning as well as a sound philosophy of education, and an adequate knowledge of sociology and educational biology.

(v) The teacher must have a basic understanding of the aims of education, especially as they have been modified by educational science, philosophy and biology.

(vi) It must ensure active pupil participation.

(vii) Since monotony is defect, so work during a lesson should be varied, particularly with younger pupils.

This variety of work may be marked on different occasions or at different stages of the lesson in the same period, by pupils' writing, watching, doing or listening to some person.

**Knowledge lesson**

For imparting knowledge in a systematic manner, a set procedure has to be followed. Certain psychological units of the lesson have to be decided. Various attempts have been made from time to time to evolve the different steps. Here is a comparative study of these steps given by Herbart, Herbartians and Dewey:

| *Herbart* | *Herbartians* | *Dewey* |
|---|---|---|
| Clearness | Preparation<br>presentation | Coming upon a problem or difficulty |
| Association | Comparison and abstraction | Gathering Data making a hypothesis |
| System | Generalisation | Developing a theory |
| Method | Application | Verifying the theory. |

Now we shall proceed to discuss in details the conduct of a knowledge lesson according to the Herbartian plan and also see how a lesson plan is written.

*Aim*: For teaching every lesson, the teacher should have some specific aim in view, which will be determined in its relationship to general aim involved. The teacher should think out the clear objective. He should express it in specific statement what he intends to do in that particular lesson e.g. to enable the pupils to be familiar with the social, economic and cultural advancement during the period of Guptas or to teach the use of 'an' 'in,' and 'under,' etc. These specific aims are the immediate purpose for teaching that particular lesson.

**Herbartian steps**

Herbart himself propounded that teaching method should proceed in four steps but these were later elaborated by later Herbartians into five.

*1. Preparation*:

The first step "Preparation ensures a revision"— a bringing back to consciousness of old knowledge with which the new is to be related. In order that the new knowledge may be acceptable the teacher must try to win over some part of the child's past experience to act, as its host. Ideas, sensations, and impressions can be apperceived or assimilated. When partially familiar they "fit in" to the relevant mass; a foreign idea finds the mind but a glass wall on which it can gain no foot-hold. So an attempt had to be made to remind the pupils of what they know already, so as to be ready to pin on to it the new knowledge. Old knowledge serves as a hook on which to hang the new. According to Herbart, the mind of the child must be perpared to receive new knowledge. Nothing is to be imparted in vacuum. This step is designed to suggest a suitable problem, and to call up a suitable set of ideas in children's minds. The Herbartians called this process preparing "the apperceptive masses."

*What is apperception*: Apperception is the assimilation and identification of a new idea by the mass of ideas already in the mind —the term "idea" being used widely to include sense impressions as well as intellectual and emotional impressions. Progress in knowledge is a process of apperception, the nature of new perceptions being determind by those which have gone before. No knowledge results from the first sensation experienced by a human being and its "presentation" to the mind or soul merely sinks below the surface of consciousness until it is raised and recalled into the conscious mind by the next sensation presented.

Thus, apperception directs our attention to the nature of the learner's mind, and the mode of its approach to new ideas. What the pupil learns is interpreted in terms of what he already knows, and not two pupils will derive identical ideas from even the same concrete objects. Hence the general principle of apperception—that the learner's knowledge about the attitude towards the new idea will condition his interest in it—is of permanent importance in teaching.

Apperception embraces a wider range than interest. By interest we refer usually to a subjective condition but apperception considers also the subject element in the process i.e., the nature of the new ideas which are to be apperceived, and includes under one term the whole procedure by which the mind advances to new fields of knowledge including in this act not only the intellectual processes but also the outflow of feeling and the effort of attention which share in producing the result.

So the teacher must search diligently to find which of their experiences have been such that by recalling them to the children, he is likely to ensure a ready welcome for the new knowledge. A great deal depends on arousing the active interest for there is no passive resister so stubborn as the uninterested child. The step of preparation is naturally essential with the present school time tables where teachers and children are half hourly jumping from one subject to another.

Acting upon the psychological principle that we interpret the new by means of the old we being a lesson by recalling ideas as children have, which will aid them to comprehend what we are about to present. The method employed is usually questioning. This stimulaing of curiosity is an attempt to reproduce in the classroom the child's natural tendency to ask questions.

This step of preparation helps the teacher to ascertain what ideas on a particular topic his pupils possess, and what further knowledge they require to satisfy their purpose, before he decides the next step in the teaching process. It helps the teacher to explore pupil's knowledge which leads to the aim. A part of the teacher's skill consists in leading the pupils to see that their knowledge is incomplete and that new fields to conquer lie before them.

A word of caution! Lengthy introductions should be avoided.

### 2. *Presentation*

Presentation, the second step, seems to indicate that the teacher will now tell the new facts, illustrate the new procedure or demonstrate the new experiment. Presentation is controlled by the aim which is best expressed in the form of a problem to be solved and the teacher will guide the inquiry into profitable channels by suggesting the more promising routes, and by ruling out those which offer no help. The problem must be kept clearly in view and not lost sight of in the many details that many emerge; the pupils themselves should be given full opportunity for suggesting how and where a solution may be found. Relevant facts must be arranged in order and correlated with the previous knowledge. For clear exposition, various devices can be used e.g., questions, illustrations, explanations, exposition, demonstration, and audio-visual aids. New knowledge may be explained, revealed or suggested. The teacher has to put himself into the shoes of the child to explain to him the things so that the child 'assimilates' and 'comprehends' the new knowledge without any difficulty. If the presentation is lengthy the teacher may divide it into well-defined parts or sections and after every section, check the comprehension of the students. The teacher should understand the capabilities of his class. He should foresee how much time will be spent in discussion, revision, practical work or in disciplinary interruptions and gauge the amount of his material and arrange the rate of his exposition accordingly. Herbart emphasised that the presentation should be so vivid "that the pupil will imagine that he has a direct sense perception." Analysis should proceed by taking apart experiences or events, making them clearer by separating them into elements and finding essential relations. Herbart also stressed that teaching must not be stereotyped and must not lack the element of surprise.

3. *Association or comparison*

In this stage the teacher helps the class to analyse the new knowledge or experience and to compare and contrast it with the old and build up old one into a new and more complete unity. It is deliberate forming of bonds between old knowledge of which the pupil had been reminded in step one and the new knowledge in step two, and also the forming of links within the new knowledge itself. The teacher's task is to ensure that psychological apperception is achieved. Association is Herbart's real contribution to educational theory. He pointed out that facts are only learnt in their connections. A new disconnected fact is gone almost as soon as it is learnt. To assure retention a fact must be associated with others to form part of a system. In this process Adamson points out "the teacher has neither place nor part. His part lies in the preliminaries i.e., he is to arouse interest, afford them with opportunities for gaining experiences and associating new facts with the old knowledge."

The step of comparison and association is very important particularly when we are dealing with a purely inductive lesson, such as, establishing laws in science, generalising rules in grammar.

4. *Generalisation*

In this step the whole lesson is drawn together—a summary is made, a general rule formulated. Specifics become fruitful generalisations when we make them so, when we purposely work for generalisation. We cannot add up specifics to get a generalisation. We must integrate them, arrange them into a pattern. Unless we reconstruct concrete experiences in this way, we shall remain in the dilemma of the man who said that he could read the words but the sentences bothered him. Certainly we cannot broaden our knowledge by knowing certain concrete specific examples. It is essential that pupils arrive at formulae, generalisations, and rules. The goal of mental activity is systematisation, orderliness and unification and the means thereto are comparison and abstraction. Hence opportunity should be given for reflection on the new facts that have been collected, the pupils being encouraged to state their conclusions in general terms. Generalisation is of little value to the children if it is not the product of their own thinking, reflection or experience. The step of generalisation completes the process of inquiry by providing the answer to the problem with which it began. The aim is now achieved and the pupil stands on fresh ground. The new knowledge is for use. It is obvious that the children should take the chief part at this stage of the lesson, and frequently they will do something to make the rule or summary permanent in their minds. They write in their notebooks or learn by heart or apply what they have learnt to new or different situations.

### 5. *Application*

The use of knowledge is the surest way of impressing it and making it permanent. Knowledge that is not used will soon fade from consciousness. So the teacher should seek an application both in the setting of problems and in the acquisition of further knowledge. To learn a thing and leave that skill idle is to lose it almost at once. Therefore, we should naturally expect children to apply what we teach, to use the new knowledge in other contexts and to use the discovered rule to solve other problems. Inductive process for establishing generalisations must be followed by deductive application. Consolidation of knowledge will take place only when the knowledge learnt is applied in similar situations. Generalisations get fully and securely established when put to use.

### 6. *Systematisation or recapitulation*

Systematisation or recapitulation is merely a revision or repetition of the knowledge learnt in the lesson. It helps the pupil to come to some conclusion with reference to the wider significance of the problem. In this step, the consideration of further subsidiary evidence may be involved, particularly in science and humanities.

Recapitulation may be done in two ways—sectional revision at convenient sections of the lesson for revising the main facts taught therein or recapitulation at the final stage of the lesson. An attempt is made to ask children to 'tell back' or reproduce what they have learnt. The pupils will learn how to express themselves and how to reproduce the material learnt.

### *Merits*

The Herbartian method, although styled as stereotyped has some good points:

1. The method conceives of a lesson as a plan of campaign and emphasises orderly procedure. Though ideally the steps would be covered in one lesson, this is not essential: for topics covered at greater length, the steps are important.

2. Herbart's attempt to base a method of instruction on an analysis of the learning process is a great contribution in the history of the methodology of instruction. He divided the material of instruction into "method units" not lessons, each unit containing one general truth to which the aim would point. The statement of aim—which Herbart emphasised is very useful both for the teacher as well as the pupils—helps the teacher to select the content of the lesson; it arouses in the pupil a sense of expectation, helps him to recall his own relevant ideas, and because he knows the goal, this enables him to apply his own mental energy to its achievement. Thus the pupil's interest, understanding and volition are engaged.

The steps, whatever their number and names, are not very important but the attempt to describe the working of the mind is quite significant. From the presentation of orderly arranged particulars, designed to promote clearness without which "there could be no system, no order, no relationship" the mind passes to the apprehension of general ideas and strives to express an answer to the aim.

3. The teacher can still get sound guidance from Herbart's method by attempting to follow the technical step—for instance, the starting point is to be found in the pupil's own experience and knowledge; the rise from the perpetual to the conceptual level and the consequent greater mastery of the perceptual and the different contributions to be made to the learning process by the teacher and pupil and how the aim is to be related to the pupil's purpose and guide the activity to its end.

*Limitations*

1. The steps in teaching process cannot be separated rigidly. The mind does not wait till presentation is complete before association and comparison begins; ncr does the pupil stay at comparison before abstraction is on its way. The mind, like the weaver's shuttle, is continually moving backwards and forwards in the warp of experience, and the pattern develops as the different srands fall into place. Once the mind realises that there is a problem to be solved—a solution or partial solution or guess will arise and influence subsequent inquiry. The teacher usually knows the answer to the problem set and is tempted to short-circuit the process, but he must learn to wait, to suggest, to help. Thus, steps cannot be treated exclusively. Association and generalisation may with advantage continue throughout the whole lesson, rather than be reserved for particular stages.

2. Herbartian method is only useful in lessons whose aim is the acquirement of knowledge. Prof. Findlay showed that at the beginning

of the century, the psychological factors involved in the acquirement of skill, were very different from those involved in the acquirement of knowledge and that is why the technique of instruction must differ. Still later, Dr Hayward showed that a third type of teaching, in which the primary concern of the pupil was neither with knowledge nor skill but with the enjoyment of art, must be separated from the other two.

3. The term 'presentation' suggests a passive recipient, whereas the mind is incessantly active in a process of apperception, relating the new ideas to the old, modifying old structures and erecting new ones. So instead of using the term 'presentation' it would be better if we use the term "development" or "stage of experimentation." The whole trend of modern teaching is to devise activities for the pupil from which he may derive the new ideas he requires, finding them out by active search. The good teacher is often good because he is ingenious in suggesting methods to the class, which will lead to the discovery of relevant knowledge. The step of 'presentation' should be made a process of active inquiry. The use of maps in geography, of time charts and contemporary narratives in history, use of experiments in science etc., are among the familiar devices of method designed to promote the pupils' activity and to make the step of presentation a process of active inquiry.

4. Herbart may be right in his insistence on the necessity of association but he is probably wrong in making it a separate stage in a lesson. To attempt to make the associations at the end of presentation is to involve a weary repetition of much of the lesson and to destroy the interest in each piece as it is told.

5. According to Dr Griffin, "Herbartian techniques are quite enough to convert a highly motivated youngster into a first class technician, book keeper, accountant, secretary or minor executive, carrying out with skill and intelligence the plans or instructions. But they are not good enough to develop real scientists or top flight policy making executives or anything else that requires the independent judgment of a free and inquiring mind. This last category, as it happens has special importance in a land committed irrevocably as India surely is, to the achievement of democracy. Herbartian techniques will serve splendidly for the training of *subjects* to serve an authoritarian state, but not for education of self-directing free citizens who can make themselves count in setting up the directing values of their society."[1]

6. The major defect of the Herbartian plan of teaching is that it tends to encourage a rigid uniformity of method instead of variety. Lessons tend to be too stereotyped. There is too much talk and chalk

[1] Dr A.E. Griffin, the Meaning of Educational Methods, *Teacher Education*, January 1957, journal of the All India Council for Secondary Education.

and too little active participation by the pupils. The emphasis is laid on what is taught rather than on what pupils learn—little is done to encourage questions or discussion or interest.

7. Herbart's analysis is over intellectual, and assumes learners who are eager for knowledge. There are, of course, disinterested learners who are censured by the passion to know, but there are not found in large numbers in school. The majority will seek knowledge when they require it for a practical end, just as they will avoid the labour of thinking until they find themselves up against a difficulty which baffles and makes them uncomfortable. The pursuit of knowledge follows the basic needs of mankind and springs most easily from those instinctive urges which determine human interests.

8. Another defect of Herbartian method is its suggestion that the step of abstraction or formulation of a general truth is a comparatively easy one to take. When the presented ideas are sufficiently clear and adequate and the comparisons and associations are made, then according to him, the abstraction seems to follow naturally. But the history of growth of knowledge shows how long and difficult efforts may have to be put before generalisation is arrived at.

Although the teacher can still get sound guidance from the Herbartian method, he is advised not to reduce it into a stereotyped process to be confused within a single rigid pattern. The teacher must know how to meet the situation as it develops. For instance, the step of 'preparation' may sometimes reveal an expected deficiency which will change the procedure from the anticipated. He has to shape a process and he must be alert to direct it into the most profitable channels. Steps have to become the servant and not the master. The real test of teaching skill lies in the kind of mental activity stimulated in the pupils, in the pleasurable activity they experience and in their developing apprehension of the subject-matter. So steps should help in facilitating the learning process and not become the end of teaching.

### Alternative scheme

A.H.T. Glover, in [his book, *New Teaching for a New Age* has recommended an alternative scheme. It is based on more modern concepts of educative process. He has named his steps of teaching as questions, discussion, and investigation of pupil activity and expression.

#### (a) *Questions*

The lesson is introduced through questioning. The questions which the teacher asks may be of any type—introductory, developmental and recapitulatory. The pupils are also encouraged to ask questions so that they are actively involved in the learning process.

(b) *Discussion*

The next step is *discussion.* The class may be divided into groups. The teacher's duty is to guide the discussion properly and to classify the main points raised and to systematise them. He will provide maximum encouragement to the pupils to express themselves. Discussion will help to include the relevant points and to eliminate the irrelevant ones, with the result a particular topic can be selected.

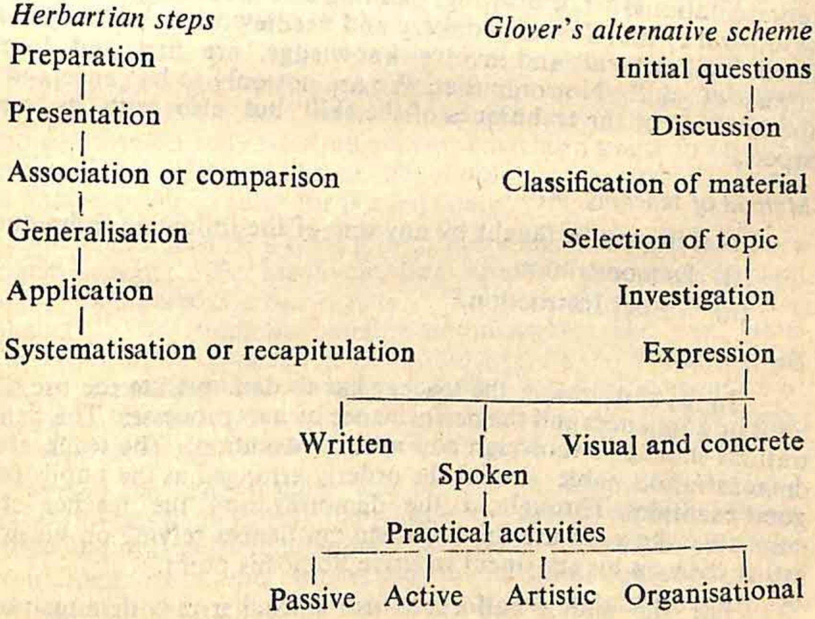
(c) *Investigation*

Discussion will be followed by investigation. It may be individual or group effort.

(d) *Expression*

Expression will be the last step of the lesson. It may take the form of written, oral or visual and concrete activities. Activities may be *passive*, e.g., observing, listening etc., *active*, e.g., handwork, drawing, gardening etc., *artistic* or recreative, e.g., dancing, music, creative art work etc., *organisational*, e.g., individual or group or committee organisation.

Thus, a comparative picture of an alternative scheme advocated by A.H.T. Glover and Herbartian steps advocated by Herbart will be as follows:



As long as introducing an element of active participation on the part of the students in the learning process is concerned, Glover's scheme is quite commendable. But it seems rather doubtful if it can work properly with very young children who may not be able to put questions and take an active part in discussions. With higher classes, the scheme may work provided there are no restrictions of the curriculum, and time, and also the number of students is manageable in the class and their standard of intelligence is almost the same.

**The skill lesson**

To learn various skills is a human need. Psychology has confirmed the claim that the use of the muscles is not only good for the body, it is also good for the mind. "No impression without expression," clearly speaks of the value of skill. Rousseau wrote a long time back, "If I have made my meaning clear, you ought to realise how bodily exercise and mutual work unconsciously arouse thought and reflection in my pupil. He must work like a peasant and think like a philosopher if he is not to be as idle as a savage." L.P. Jacks has so well put it, "The human body is naturally skill hungry and until that hunger is satisfied, it will be ill at ease, craving for something it has not got and seeking its satisfaction in external excitements which exhaust its vitality and diminish its capacity for joy. Short of skill, the perfect health even of body, is impossible." No wonder great importance is attached to skill lessons.

The arts of reading, writing, counting, speaking and singing, the representational art of drawing, painting and modelling, and crafts like wood-work, metal-work, cookery and needlework, while they contain intellectual elements and involve knowledge, are first and foremost affairs of skill. Not only that. We are not only to be concerned with the teaching of the techniques of the skill but also with its creative aspects.

*Method of teaching skill*

A skill may be taught by any one of the following techniques:

(i) Demonstration.

(ii) Verbal Instruction.

*Demonstration*

In a skill lesson, the teacher has to demonstrate the use of new tools or appliances and the performance of new processes. The demonstrations should be thorough and neat in execution. The teacher's own demonstration table should be orderly arranged as the pupils follow good examples. Throughout the demonstration the teacher should emphasise how to use the tools and appliances relying on his actions rather than on his statement to drive home his point.

For the simple uniform skills the teacher may demonstrate the best way and insist on a faithful imitation: in the fine arts he must b more tolerant of variations. In these differences lie the seeds originality which lifts limitation above slavish copying. The teacher is justified in checking and repressing variations where they lead to inefficiency—but those which seem to express intelligent reflection and ingenious experiment should not be condemned. Not all teachers are perfect exponents of the art they teach.

All the significant points in the skill should be stressed during demonstration.

### *Verbal instruction*

Although verbal instructions are no substitute for demonstration, yet it is a useful teaching method if the teacher has the clear mental imagery to describe the movements in details and the learner has sufficient experience to grasp them. The teacher may describe the process with the help of technical terms, illustrations and sketching of diagrams.

### *Orderly steps for teaching skill*

*Preparations*: The teacher may introduce a skill lesson in a variety of ways : (a) The teacher can create the interest of the pupils by showing them good specimens of articles; (b) The teacher can take the pupils to art galleries and museums, and school workshops; (c) The pupils can be placed in such a situation that they find it necessary to acquire some kind of skill e.g., the execution of some project requires the performance of certain skills. Such devices may be used to make the pupils feel an inner urge to learn the skill.

The teacher's preparation must be complete in every respect before the lesson begins. He should ensure that he has an adequate number of serviceable tools, that he has sufficient material ready for use and distribution and that arrangements have been made to facilitate an easy start to the lesson. The teacher should also be sure of the size of the class in order to cater for it adequately.

*Aim*: There must be a clear aim to every lesson. It may be "How to prepare soap", "To teach children how to sow seeds or plant cabbages," "To prepare a name plate," "To teach children the writing of alphabets." That much the children should know. The aim, however, will have more significance for the teacher. In order to direct the making of a model or the planting of cabbages or the preparation of a name plate, he will be concerned with the use of tools and the teaching of certain processes which may be introduced for the first time.

*Presentation:* The teacher can present the new form of skill in two ways—he can demonstrate the process or he may verbally explain the process with the help of diagrams and blackboard sketches. For the simple uniform skills the teacher may demonstrate one which is the best way, and insist on a faithful imitation; in the fine arts he must be more tolerant of variations.

*Practice:* It is the repetition of the activity that the teacher has demonstrated. This step will take a much longer time than the other steps, for skills are acquired only slowly. Proficiency in the skills depends largely on the success of individual practice; the pupil will certainly need much guidance, but the clearest of explanations by the ablest of teachers will not lessen the importance of practice. So the major part of the lesson should be devoted to practices. Such practices will be hesitant at first and imitative in character, but under the direction of a sympathetic teacher, unobtrusively watchful and alive to the value of the occasional suggestion, the pupil will gain in confidence and efficiency.

When the child is required to use the cutting tools or perform the operation, supervision is essential. Sometimes, trial practices may be essential. It is very necessary that when the child performs, he should have the unobtrusive supervision of the teacher, who should during the activity make casual reminders of the essential points demonstrated earlier. Practice makes perfect when the proper movements and the correct usages are repeated—hence the importance of proper supervision during practice. If necessary, the teacher may redemonstrate the process or restate the rules. In the learning of skills, it is most important that errors in performance are corrected in time lest they become fixed through repetitions of wrong performance or through a substantial lapse of time. The practice of skill learning is largely one of trial and error. But if it is guided by the teacher's demonstrations and is conducted on an intelligent level, it will save the learner from many mistakes and expedite his progress. He is liable to make mistakes but he can be helped to avoid them if he carries in his mind the image of a better performance which helps to reveal to him the drawbacks of his own. The teacher need not fear the effects of initial error, so long as he can keep alive his pupils' determination to progress, to improve skill, to suffer increasing dissatisfaction from failure and imperfection, and to pursue accuracy more and more as a conscious end.

*Statement of rules:* Statement of rules will be the next step. The step of formulation in the process of acquiring knowledge is the pinnacle of an educational effort. It is the answer to the problem set. This step is an economiser of time, an aid in grouping together the uniform factors and leaving the mind free for those that vary. It needs to be pointed out here that the lowliest skills are the most uniform and most capable of being expressed as 'rules', the higher skills defy universal rules. Rules restrict activity and endanger freedom and spontaneity and the greatest artist is least conscious of them. In the mechanical skill, like spelling, such rules may be helpful. In a maniputative skill, like wood-work, rules are a summary expression of experience: different tools are held and different processes worked in particular ways. Such rules should not be unduly pressed on the pupil and his own modifications are often right. In the fine arts, rules are frequently only temporary aids and of small importance—they are quickly absorbed into the whole pattern. For instance, the skilled pianist no longer thinks of his fingers when he plays; analytical attention to an element would mar the effect of the whole and make his performance less unfied, less personal, less free. Thus "rules can become the cause of death of true art." So rules being summary expression of experiences are only temporary expedients for beginners only.

**The appreciation lesson**

The appreciation lesson aims at developing the aesthetic sense of the pupils. It aims to enable the pupils to appreciate beauty as expressed in colour, form and sound. The main objective of such type of lesson is to develop the emotions as against the acquisition of skill or knowledge. It is said, "Youth wants colour, life, passion, the poetry of revolt." As such aesthetics cannot be neglected in the school.

It is believed that aesthetic appreciation cannot be taught but like religion, it can at least be "caught." Some critics declare that formal lessons are a snare, perhaps an obstacle to emotional enjoyment—but it needs to be emphasised that aesthetics cannot be neglected in the school. The pupils have to be given training for discerning and enjoying beauty or other excellence, especially in art, music and literature. Human mind can rise above surroundings and can experience a sense of beauty even in unlikely places. Music makes its appeal wherever it is heard and poetry can lift the responsive listener into a new world.

Thus for developing finer and nobler feelings, subjects like literature, art, music, must be taught properly.

*Conducting an appreciation lesson*

A lesson in appreciation is for enjoyment and requires stirring of feelings and emotions. As such teaching it with certain formal steps may not be useful. No definite procedure for the conduct of such a lesson can be suggested. The following steps may be followed in the initial stages:

*Preparation*

The teacher's first task is to provide and repeat experiences from which the pupil derives emotional pleasure. He has to motivate the pupils for enjoyment, provide suitable environmental conditions and provide the most suitable material available. There should not be any distraction. Difficulties of the students must be anticipated by the teacher and these treated in a preceding lesson. Lesson in appreciation is an invitation to look at or listen to something beautiful, with leisure to enjoy it in a favourable atmosphere. So there should not be any tension around. The physical conditions should be most favourable.

### *Presentation*

The teacher should make use of every device which will assist the vividness of appeal and enable the pupils to enjoy the lesson to the maximum. The teacher should have a real enthusiasm and appreciation for the form of art he teaches. Knowledge is not enough; there must be sensitiveness to the beauty it expresses, an emotional warmth that breaks through without effort. For literature the ability to read well, for music the ability to play or sing and for art sense the skill with brush or pencil can prove very advantageous. An appreciation lesson cannot be delivered well unless there is real enthusiasm and appreciation in the teacher himself. He cannot do full justice to his lesson unless he has made the work of art a part of himself. The first impression made by a work of art must be safeguarded from all imperfections of presentation, and the teacher must take precautions against possible sources of weakness.

A lesson in developing aesthetic sense should not be divided in parts. Much more responsibility lies on the teacher presenting literature than in music or arts. Pictures are presented to the observer as the artist painted them, and they cannot be marred in the process. Music is presented either by a skilful exponent or by gramophone and radio. The effectiveness of reading depends upon the rare gift of a sincere feeling for literature and upon the equally rare possession of a musical voice and attractive delivery. It is literature which is very difficult to teach with effect. Wilkes has well said, "Much of the world's finest literature has been spoilt for individuals by the teacher's over-analytic treatment. The teacher who dissects a poem shred by shred, who paraphrases the contents, underlines the assonance, belabours the rhythm or hammers at rhyming scheme gives knowledge at the expense of appreciation." Obviously, the first presentation should be uninterrupted and if possible, completed in one sitting. Pictures cannot be presented in pieces and poems and music should, wherever possible, be regarded as equally indivisible; they are wholes and must be enjoyed as wholes before any analysis takes place.

Appreciation cannot be forced. The pupils can be helped to appreciate through various techniques—proper atmosphere, good presentation, good expression and his own interest.

### *Contemplation*

Contemplation is the step next to presentation. It is, in fact, a brief pause allowed to children to feel, think and contemplate on the material presented. As far as the critical appreciation or intellectual discussion is concerned, that should only be attempted at higher levels. The musician and the artist must devise their own modes of analysis. The procedure from the whole to the parts, the relation of the whole to its background, the structure and meaning, and the more detailed excellencies of the work of art which has been presented to the pupils offer endless possibilities; the task of the teacher is to decide how much of their analysis will be profitable for a particular class.

### *Application*

The lesson in appreciation should seek an immediate application in the stimulus it may provide for creative exercises. The child passes from enjoyment to action; he tries an imitation of an author who has made a vivid appeal, he tries to write poetry, to paint, to sing. While such efforts belong to the acquirement of skill, they have also an important effect on appreciation; they show more clearly where difficulties lie and how they may be successfully mastered. They reveal excellencies of technique that have been hidden and details of structure and pattern that are not at once obvious.

There is the further application also in the enjoyment of leisure. For appreciation of literature or music or art may become at once the cheapest and most satisfying of all leisure time pursuits.

### **Conclusion**

The three types of lessons have been discussed not that the three aims—to impart knowledge, to impart skill and to enable the pupils to appreciate—are to be achieved exclusive of each other. To know, to feel and to do are the ultimate of living; they are indissolubly bound together. Any analysis of method is so far formal and artificial, and the teacher together with his pupils must achieve the synthesis which reunites the components in experience. The teacher is greater than the method he uses, and the child is greater than the teacher, for the teacher is to serve the child, and to help him to achieve his freedom. This aim transcends all, for the purpose of education is to enable the child to live a richer life by the development of his natural powers within the framework of society. No formal steps of teaching and no particular label of method will suffice for all the situations that emerge in the school, since life will not conform to the limitations they would impose. The teacher may learn from them, and develop his own power of self-criticism with their aid but he, too, is both artist and craftsman claiming the freedom of the expert to fashion the material in ways that he discovers best suited to the nature and to the development of his pupils! Knowledge divorced from doing and interest is barren, indeed nothing more than waste mental lumber that the healthy child drops as quickly as possible into unconsciousness. Skill acquired apart from understanding is obviously mechanical and likely to fail in an emergency when it is most needed; and feeling divorced from action and unchecked by thought can easily degenerate into sentimentalism or hysteria. Consequently, to plan the knowledge lesson and leave it unconnected with a child's interest and with no thought to its use is to court failure, to try to give a child the power of doing any simple thing quickly and mechanically—even for instance, saying tables—without making the mechanical process the outcome of understanding—takes longer and is a less durable possession than if practice is intelligent; in the same way feeling that cannot spend itself in action or grow through knowledge at the best, fails to develop.

**Essentials of a well-delivered lesson**

Here are some suggestions for a lesson to produce a good effect:

(1) Lesson-notes should be well-planned, well-prepared and well-written. It will pay in terms of good confidence if the lesson is rehearsed mentally.

(2) Be very clear about the objectives of teaching the particular lesson. Specifically relate various learning activities to relevant objectives in the lesson plan and its objectives. Incorporate the specific objectives in the evaluation of the lesson.

(3) Have complete mastery of the subject-matter. Gather appropriate facts for the development of the general theme. Refer to appropriate and adequate source material to substantiate the running thread of the lesson.

(4) Use appropriate teaching aids systematically, effectively and productively. Aids should be visible to the whole class and should not obstruct your movements.

(5) See that the pupils are well-seated, the ventilation of classroom is proper, blackboard clean and at proper place and adequate place for keeping the illustrative material, pegs etc., on walls to hang the charts etc. There should not be anything to disturb either the teacher or the pupils.

(6) Introduction to the lesson should be interesting if there is a departure from the routine steps of the lesson. The departure should be in desirable direction. Time devoted for introduction should not be more than five to seven minutes at the most for a period of 40 minutes. Introduce the topic in an interesting manner with the help of a picture, model, anecdote, or questions so as to arouse active curiosity of the pupils for learning the new topic. Introduction should be most stimulating.

(7) Introduction should straight away lead to the announcement of the aim. Do not forget to announce the aim and write the topic on the blackboard.

(8) In presentation adopt right methods required according to the nature of the subject-matter. Involve the pupils as much as possible, get their active and whole-hearted co-operation. Bring sympathy for the erring, the puzzled and the withdrawing pupils. Be clear about the thoughts and expressions. Give challenging situations to the pupils. At the top of it all, avoid the use of 'should' 'deserve'. For

teacher cannot bring his mistakes or sweep his dirt under the rug. The teacher-learning process should appear as a co-operative venture in which both teacher and taught are sincerely and actively engaged. The child should have the adventure of the intellectual hunt which will open new windows in his mind, stimulate his imagination, stir his interests, encourage his curiosity and give him confidence.

(9) Use of blackboard should be systematic and timely. Writing on the blackboard should be legible, clear and bold. Prepare a neat blackboard summary with the help of the pupils. Figures, charts, sketches etc., on the blackboard should be expressive and proper.

(10) If your lesson is divided into sections, do not fail to have the sectional revision after you finish each section.

(11) Questions put to the class, should be definite and clear, stimulating and thought provoking, fairly well-distributed over the whole of the class.

(12) Periodically check up whether the pupils are coming along. Give time to the pupils to get their doubts cleared and mistakes corrected. Learning activities should inspire self-learning among the pupils. They should give the pupils time to think, to reason, to analyse, to synthesise and to deduce conclusions in connection with the subject-matter.

(13) The lesson should be related to the actual life. You should have the appreciation of the functional correlation between the subject-matter and the problems of life. You should have the insight into the relationship between the subject-matter and needs of life.

(14) Budget the time according to the steps of the lesson. Never rush through the lesson. All steps of the lesson should be given due time.

(15) Pay individual attention to the pupils where needed. Be careful about the back-benchers.

(16) Be natural. Do not stand like a statue and move in a mechanical manner in the class. Do not put your hands in the pocket or lean on the chair or table. Avoid playing with chalk.

(17) Have neat and tidy work habits—particularly in regard to blackboard work, correction of notebooks etc.

(18) Attend to the pupils work habits also. Pay attention to defective reading, writing, sitting, and standing postures.

(19) Have adequate command over spoken language for effective, smooth, and flawless expression. Be clear and concise in the

(f) The extent to which interest is created.
(g) Skill in questioning and dealing with answers.
(h) Clarity of thought and expression.
(i) Use of teaching aids.
(j) Blackboard work.
(k) Correlation of lesson to actual life.
(l) Class-management.
(m) Neat and tidy work habit.
(n) Sectional revision.

(4) *Miscellaneous*
(a) Lesson notes.
(b) Apportioning time to different steps.
(c) Application and practical work.
(d) Student's written work.
(e) Pupil's reaction to the lesson.

## Summary

1. A lesson-plan is a plan of action. It points out what has already been done, in what direction the pupils should next be guided and helped and the immediate work to be taken up. Careful planning is the foundation of all good teaching.
2. There are three types of lessons—knowledge lesson, skill lesson and appreciaton lesson according to the objectives of education. Any analysis of method is so far formal and artificial, and the teacher together with his pupils must achieve the synthesis which reunites the components in experience.

## Questions and Problems

1. "Apperception—the assimilation of ideas by means of ideas already acquired—is the basal psychological principle of Herbart when applied to education. The theoretical exposition of this idea is his chief work; its practical elaboration, that of his followers." Discuss.
2. "Tediousness is the greatest sin of instruction. It is the privilege of instruction to fly over steppes and morasses; if it cannot wander in pleasant valleys, it can at least exercise in mountain climbing and reward with broad fields of view." —Herbart. Discuss the role of interest in teaching-learning

use of language. Avoid verbalism. Be economical in the use of language.

(20) Be sure to recapitulate the lesson and to enable the pupils to apply it to new situations. Give exercises or assignments to the pupils to do. If it is a skill lesson, allow the pupils to perform the skill under your supervision.

(21) Maintain the discipline of the class. Weld different sections of the class into a homogeneous advancing group. Provide for the fusion of the element of competition and co-operation in a rational unit. Provide through your own intellectual, moral and emotional integrity, a model of creative and responsible leadership to pupils.

(22) Do not be too rigid and mechanical. Allow departures from your original plan if the class situations so demand.

(23) If the lesson involves generalisations or formulations, let the students discover them. Do not tell them as that will defeat the very purpose of the lessons.

### Critical observation of lessons

To observe a lesson for evaluation, note the points listed below:

1. (a) *Teacher's personal appearance and movements.*
   (b) Command of language.
   (c) Voice (rhythm, speed, volume, pitch to be taken into consideration).
   (d) Interest in the subject and pupils.
   (e) Alertness.
   (f) Mastery of the subject-matter.
   (g) Preparation.
2. *Subject-matter*
   (a) Selection and suitability.
   (b) Amount of subject-matter.
   (c) Division into sections and their arrangement.
3. *Method*
   (a) Presentation of the subject-matter.
   (b) Method adopted.
   (c) Pupil's involvement in the lesson.
   (d) The range of activities provided and their productivity.
   (e) The amount of originality shown in the presentation of the lesson.

process. Suggest devices which may be used to make the pupils interested in the lesson.

3. Describle in broad outline the principal type of lessons and indicate to what type of subject-matter they are applicable?
4. Enumerate the Herbartian Formal Steps and give the scope of each step.
5. "Previously drawn lesson plans are more of a hindrance than help in effective teaching." Do you agree or disagree with this? Give reasons.
6. "You destroy the spirit of a lesson by sticking too much to the Herbartian steps." Give your own view on this statement and support your answer with suitable examples.
7. Differentiate between a skill and an appreciation lesson. Explain the essential steps of each.
8. Evaluate the system of lesson plans in your college with referenee to the needs of full-time teachers in a high school. In what essential respects would a lesson plan used in a college of education differ from that used by teachers in service.
9. Evaluate the contribution of Herbart to teaching. 'Strict adherance to Herbartianism leads to some very unnatural activities and to a rigid uniformity in teaching which devitalises it.' Indicate how this can happpen.
10. What is the usual criticism of the Herbartian method? How can it be answered? Give your own views in this matter.
11. What are the essentials of a well-delivered lesson?
12. What is a "Skill" lesson? Outline the procedure of teaching such a lesson. Give concrete examples.

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# 11

# PROGRAMMED INSTRUCTION

*The background—Programmed instructional material—Styles of programming – Steps in programme writing—Advantages of programmed instruction—Summary—Questions and problems—Bibliography.*

## The background

Programmed instruction has a long past. Socrates, the great philosopher teacher, is said to be one of the earliest programmers. He developed a programme in geometry which was recorded by his disciple, Plato, in the *Dialogue*. It is said Socrates guided his followers to knowledge through questions, from fact to fact, and insight to insight.

The *tutorial system* adopted by British universities is considered the next phase of development of programmed instruction. In this system, there is a continuous exchange of questions and answers between the tutor and his students.

Some direct relevance to programming is also found in the *Law of Effect* advocated by the great psychologist E.L. Thorndike. The law states that learning, which is accompanied by satisfaction on the part of the student, is likely to be more permanent than learning which is accompanied by dissatisfaction. Successful actions are also more likely to be repeated than those which bring displeasure or discomfort. The reward received by the learner is said to reinforce his behaviour. Anything which has the effect of strengthening successful behaviour (reward) is known as a reinforcer.

Programmed instruction, in an advanced form, was initiated by Prof. Sidney L. Pressey's use of teaching machine. In this device, there was a window showing four multi-choice questions and answers and four keys. If the student thought that the second answer was correct to the first question, he pressed the second key. If his answer was not correct, the question stayed and the learner continued making efforts until he was able to get the correct answer. A record of the attempts made by the student was maintained automatically.

During 1940-50, a number of devices were developed for teaching in the army so that skills could be taught through individualised self-teaching. These devices which were styled as *phase checks* were used to teach and test. Each step in this skill—e.g., assembling and dismantling any equipment—was organised on the assumption that responses which are given and for which there is automatic feedback, has great significance in learning. This was a linear programme in which the learner's problem was to complete these steps which were necessary for learning a skill or performance in a behaviour.

Normal Crowder's contribution to programmed instruction is also significant. His intrinsic or branching type of programme, as found in tutor texts or scrambled text-books, contains the steps which have a small amount of information, generally, less than a page and multiple-choice questions are given along with it. After reading the subject-matter, the learner selects an answer and then goes to the step indicated by his choice. If the answer is wrong, the learner is directed to the information which helps in removing the cause of the mistake and then he is left at the step the mistake occurred.

In 1954, Prof. B.F. Skinner of the Harvard University wrote a paper—*The Science of Learning and Art of Teaching*. With this paper began a great expansion in educational communication. On the basis of his extensive research on rats and pigeons, Skinner developed a theory of learning called *operant conditioning*. In his paper, Skinner introduced the idea of learning contingencies or steps. The device made it possible to present carefully designed material in which one problem could depend upon the answer to the preceding and where, therefore, the most efficient progress to an eventually complex repertoire could be made. Provision was made for recording the commonest mistakes so that the tapes could be modified as experience dictated. Each pupil could progress at his own rate, completing as many problems as possible within the class period. Reinforcement of the right answer was immediate. A new concept given by Skinner was that the subject-matter could be divided into small steps, which, by adding small amount of knowledge at every step, could take the student to the mastery of the subject-matter. Another concept which developed later was that on the basis of activities of students, a sequence of steps could be planned. These two concepts, in fact, are the basis of programmed instruction.

As far as India is concerned, it would not be any exaggeration to point out that *Bhagwadgita* is the first programmed text in the world. It has all the ingredients of programming: *initial behaviour, small steps, active participation, terminal behaviour, immediate knowledge and self evaluation by the learner.*

## What is programmed instruction?

By programmed instruction is meant the kind of learning experience in which a 'programme' takes the place of a tutor for the student, and leads him through a set of frames of specified behaviours designed and sequenced to make it more probable that he will behave in a given desired way. American writers define it as "a process of arranging material to be learned in a series of small steps designed to lead a learner through self-instruction from what he knows to the unknown of new and more complex knowledge and principles."

The *programme* is the important thing about programmed instruction. The subject-matter to be programmed is analysed thoroughly and divided into meaningful segments of information. One segment of information is presented at a time to the learner. This piece of information is called a 'frame.' It is usually a series of items, questions or materials to each of which the student is asked to make a response. His response may be to fill in a word left blank, to answer a question, to select one for a series of multiple-choice answers, to indicate agreement or disagreement, or to solve a problem and record the answer. After writing his response of the frame, he can compare his response with the correct response of the programmer. The items are so skilfully written and the steps are so small that the student practices mostly correct responses. The sequence of· items is so skilfully arranged that the student is taken from known responses to the final response. The learner proceeds at his own pace. Thus programming, by providing self-pacing, had incorporated the principle of individual differences in the teaching-learning process.

The teacher can regularly assess the progress of his students. He can find out the weaknesses of his programme and improve it. The student can also continually evaluate his performance on the programme.

**Programmed instructional material**

There are three basic types of programmed instructional material —*the teaching machine*, *the programmed text-book*, and *scramled text-book*.

*The teaching machine*

A teaching machine is simply a mechanical device or piece of apparatus designed to present to the student a sequential programme of learning activities comprising instructional items which require the student to make an overt response and which provide the student with immediate knowledge of the accuracy of his response. It represents the first practical application of laboratory techniques to education. Karpass says, "There is another magic about the teaching machine. It is merely a device intended to function in the role of a private tutor."

*Programmed text-book*

The programmed text-book does not differ from an ordinary text-book as far as its external appearance is concerned but its interior is quite different. Each page consists of usually four or five panels. The sequence of the panel is not from the top of the page to the bottom as in a conventional text-book. Only one panel is read or responded to before the student turns it. The student begins with the top panel, on page one, responds to it, turns to page two to get his answer confirmed on the top panel, goes to the top panel on page three, responds to it, confirms the answer by turning the page, and so on to the end of the unit or chapter, wherein he is instructed to return to page one and respond to the second panel on each page and so on.

The purpose of the programmed text-book is to produce in the student an emitted response rather than to choose one from a series of alternatives. It is intended to direct the students' progress through a sufficient number of steps that have been meticulously conceived in order to reduce the opportunity for incorrect or partial responses.

### *The scrambled text-book*

In a scrambled text-book, the student is given the material to be learnt in small logical units and is tested on each unit immediately. The test result is used to automatically conduct the material that the student sees next. If the student passes the test question, he is automatically given the next unit of information and the next question. If he fails the test question, the preceding unit of information is reviewed, the nature of the error is explained to him and he is retested. The test questions are multiple-choice and there is a separate set of correctional materials for each wrong answer that is included in the multiple-choice alternatives. The pages are not read consecutively. The student may be sent either forward or backward in the text, the number of the page in either direction being randomised. Thus, no clue to the correct alternative can be found in the page reference accompanying each alternative.

In a scrambled text-book, branching or intrinsic technique is used.

## Styles of programming

Two styles of programmes have been generally used:

(i) Linear of Extrinsic Programming
(ii) Branching or Intrinsic Programming

## Linear or extrinsic programming

Prof. B.F. Skinner is the exponent of this type of programming.. He was concerned with the shaping and conditioning of behaviour According to Skinner, a creature (be it a bird, rat or human), can be guided to a desired behaviour by means of a series of carefully structured small steps on the condition that each correct step is immediately reinforced by some kind of favourable experience or reward. This process of rewarding the correct response to a stimulus renders the response highly probable in the sense that it will be repeated in future.

The frames prepared in this type of programming contain almost two sentences out of which some key-word is missing. After reading the answer, the student writes the answer. The moment he makes a response, he is given the desired answer. The desired response is very often a confirmation of the student's response. In the course of programmed learning, each student is taken through many stimulus response steps.

*Example*

1. A body that circles a larger body in space is known as a satellite of the larger body. Therefore, the moon which circles the earth, is a———of the earth.

(satellite)

2. Just as the moon is a satellite of the earth, the earth is also a———of the sun, since it———the sun.

(satellite, circles)

3. The path followed by a satellite around a larger body is known as its *orbit*. The earth is at the centre of the ———orbit, just as the sun is at the centre of the ——— orbit.

(moon's, earth's)

The following steps constitute the linear programme:

(a) Information is presented in small steps;
(b) The learner responds actively at each step;
(c) Immediate knowledge of results is given; and
(d) Self-pacing by the student is possible.

Such sequence of a programme is called *linear because each learner takes the same path through the instruction.* It progresses from frame one to frame two to three, etc., in an unalterable, preplanned sequence. The linear programme does not provide for branching for able or slow learners. This programme is also called *extrinsic* because a leaner has no choice of his own in following the path or sequence. It is decided by the programmer *extrinsically*. Fig. 36 gives an idea of linear programming.

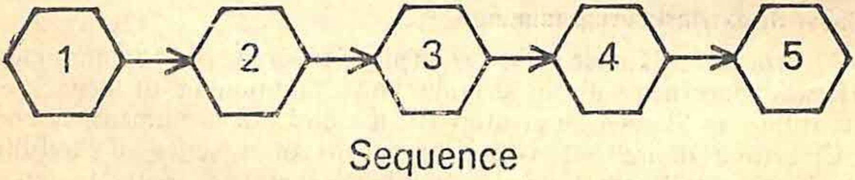

Fig. 36. Linear Programming

The linear programming style is best suited in subject areas where facts and information can be properly sequenced.

*Limitations*:

(a) *Lack of motivation*—It is alleged that learning becomes dull and monotonous as a good deal of time is taken to teach a few and simple points. Steps are small, materials lack challenge and interest for children, particularly the gifted ones.

(b) *Serial order learning*—According to Sidney L. Pressey, the frames are presented in a serial order and learning is acquired in a serial order. Learning in actual life situation is not always serial.

(c) *No freedom of choice*—The learner has no choice of his own to respond. It is felt that creative imagination and judgmental ability of the learner are inhibited. Learners do not contribute towards a discovery of answers but follow a rigid line prescribed by the writer.

(d) *Tendency to guess*—Rothkopf is of the opinion that in many linear programmes, the learner finds out the clue as to what is to be filled in the blank and key terms are guessed.

(e) *Use in limited areas*—Linear style of programming can be used in limited areas, where the subject-matter can be properly sequenced such as science, mathematics and vocabulary development in languages.

### Branching or intrinsic style

Here, the frames are not kept before the students in a numerical sequence. The student's answer determines which frame he has to see next. In this system, the student is given a problem and a number of answers, out of these one answer is correct. When the student selects an answer, he is directed to a specific frame. This frame shows him if his answer is wrong and why it is wrong. Then the frame takes him to the first question so that the answer may be given again or it will direct him to a sub-programme and will help him to get the basic knowledge for answering the question. Depending on the answers he gives, the student may branch ahead, may branch 'backward,' and secure further explanation or move ahead to the next step. Whatever may be the case, the student has to give a correct answer to the question and until he gives the correct answer, he cannot proceed to the next frame. Fig. 37 gives an idea of branching programming.

Branching programmes are published in the from of scrambled books.

*Limitations*:

1. *Guessing*—There is every possibility that the learner may guess the correct response without understanding the subject-matter of the frame.

2. *Difficulty in providing branches*—Infinite branching cannot be provided. It cannot cater to the needs of all individuals because it is very difficult to find out the total number of branches for every individual.

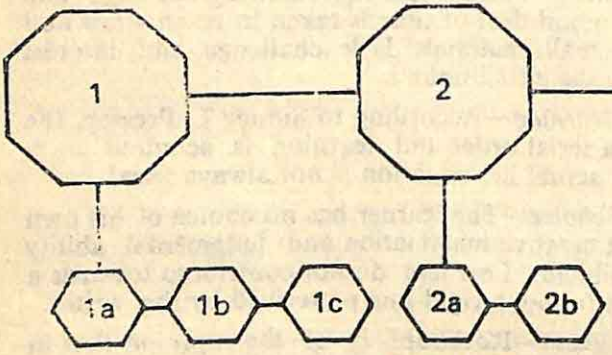

Fig. 37. Branching Programming

3. *Diagnostic questions may not suit the needs of individual learners*—Programmes are the product of a programmer's imagination and it is he who decides diagnostic questions and level of content. These questions may or may not suit the needs of individual learners.

4. *Branching style cannot be used with small pupils*—It can be used with children after sixth class.

5. *The cost of preparation is high, audio-visual equipment needed is very costly.*

6. *There is no guarantee that the pupil has learned everything the programme is intended to teach*—It is possible that, through the process of elimination, all students may eventually get through the material. There is no method of knowing whether the student has comprehended the material.

7. *The programme is unable to control the student.* It does not shape the behaviour of the student the way a programme should.

**Steps in programme writing:**

1. Preparation;
2. Actual writing; and
3. Try out and revision.

1. *Preparation*: The teacher should be thoroughly familiar with the topic and limit the area to be dealt. He should see that the topic is suitable for a programme.

Preparation of a content outline is the second step. This will help him cover all the material to be taught.

Defining objectives in behavioural terms is the third step. The objectives of a unit of instruction should first be stated in general terms of instructional goals. These objectives should be defined in *operational*, *observable*, *measurable* terms in order to facilitate the construction of the programme and its subsequent evaluation. These goals should further be analysed and then finally decided as to which components of goals are best explained by component behaviour as a result of programmed instruction.

Constructing a test for entering behaviour is the fourth step in the preparation for programme writing.

Constructing a test of terminal behaviour criterion is the last step. The terminal items contain no prompts and are placed far enough from the training sequences to measure more than immediate memory. Criterion tests may involve multiple choice items, fill in blanks, essay or performance of some task e.g., pressing a lever, pushing a button, punching a hole, etc.

2. *Programme writing*: The content outline and analysis of behavioural objectives leads to the terminal behaviour through a series of instructional activities.

The first step will be the presentation of material in frames. There are four essential parts of a frame:

i. stimulus and stimulus context;

ii. the cues for evoking responses;

iii. the response evoked by stimuli; and

iv. enrichment of material.

Ensuring the response of the student is the next step. It is essential that the student be required to make the critical response. There should be enough provision for the overt behaviour since it facilitates learning and it is also needed in the learning of technical terms. The complete record of student's written responses should be utilized later for revising the programme.

Confirmation or correction of student responses is the third step in programme writing. When the student knows that his response is correct, he obtains confirmation; where it is incorrect, he receives correction.

Using prompts to guide student responses is the fourth step in programme writing. Prompts are cues provided in the programme frame to guide the student to make responses correctly. To avoid needless trial and error, responses are prompted and erroneous responses are corrected after they are made. But over-prompting or under-prompting is not recommended.

Providing careful sequencing of the frames is the last step of programme writing. It will depend on two factors:

i. the description and analysis of behaviours to be taught through the programmes; and

ii. the conditions necessary for the learning required by the various tasks.

3. *Try-out and revision*: When the first draft is ready, it should be tried out on several persons and re-edited. The original frames should be typed and their response given on the back page. Now, it should be given to a small group of students. The students make use of the typed content (index cards) and turn to the reverse side of the cards for confirmation. It has to be seen where the mistakes are being committed. This will facilitate revision of the frames later. Next, these programmed materials are experimentally tried out in classes, and, items that are frequently missed, are changed.

In the light of these responses, the original draft is edited once again. It is tried out further and final revision is prepared.

**Advantages of programmed instruction**

1. *Student is kept active and alert*—He gets good exercise in using new words, concepts and relationships; lack of attention is at once detected. Even when the student commits a mistake, he does not have to wait for long to know it. He can work according to his own schedule. If due to illness or any other reason, he cannot attend school for some days or months, he can start from where he left when he comes back. Research studies of P.V. Kulkarni (1968), M.S. Shah (1969) and Kapadia (1972), have shown that students perform significantly better when taught through programmed material.

2. *Teacher gets relieved of doing ordinary jobs and he can play the important role of a guide, counsellor, motivator, organiser*, etc. He can become for the students a model of the thinking man and avoid becoming the administrator of simple learning tasks that can be better handled by programmed materials.

3. *Social and emotional problems can be eliminated*. It is said the introduction of programmed instruction in the West on a mass scale has brought a revolution in the social setting of the classroom. Many emotional and social problems have been eliminated and problems of discipline have been automatically solved by the use of self-instructional material.

4. *A well-programmed self-instructional device is tailored to cater to the needs of individual students of the class*—Thus, programmed instruction is a great thrust in the direction of individualised instruction.

5. *Programmed instruction makes learning interesting*—The learning material is presented in such a way that learning becomes an

interesting game in which the learner is challenged by his capabilities. The novelty of learning by a device provides extramotivation to the learner.

6. *Every student can work at his own place*—Intelligent students need no longer be bored or allowed to lose interest due to slow progress of other students of the class. They may progress as rapidly as they are able. The weak can work at their own pace.

7. *Programmed instruction is particularly useful in certain areas, such as memorisation of facts, procedures and mastering of simple facts, concept formation and learning of principles.*

8. *Programmed instruction is helpful for teaching complex subject-matter*—The complexity of the material is simplified through the analysis of the subject-matter into small and more easily assimilated segments of information. Well-programmed materials give the teacher the method and the individual sufficient time to comprehend more complex concepts.

9. *Programmed instruction, as a teaching procedure, is particularly useful for developing countries which are anxious to educate millions of children and are short of good teachers*—It is very useful in certain situations where human instructors are not easy to provide e.g., small isolated schools in the hilly areas.

10. *Programming principles, if incorporated into text-book writing, can improve the communication potential of conventional text-books.*

Programmed instruction has revolutionised the theory and practice of teaching in the last decade. It is rich in potential. It is expected that programming skills may become a part of every teacher's methodology. It is also possible that the backbone of tomorrow's instructional text-book and programmed sequences become an integral part of most text-books.

Man's ambition for good teaching and learning gives us the hope that the future of programmed instruction will definitely be bright. "The issue," in the words of Kenneth C. May, "is not whether learning should be programmed but rather how, when and by whom."

## Summary

1. Programmed instruction has a long past. Its origin can be traced to *Bhagwadgita* in India and Socrates' methods of teaching in Europe. The contribution of tutorial system adopted by British universities, E.L. Thorndike, Prof. Sidney L. Pressey, Normal Crowder and Prof. B.F. Skinner is praiseworthy.
2. Programmed instruction is a process of arranging material to be learned in a series of small steps designed to lead a learner through self-instruction from what he knows to the

unknown and new and a more complex knowledge and principles.

3. There are three basic types of programmed instruction materials—the teaching machine, the programmed text-book, and the scrambled text-book.
4. Two styles of programming have been generally used—linear or extrinsic programming and branching or intrinsic programming.
5. Three steps are generally adopted in programme writing—preparation, actual writing and try out and revision.
6. Programmed instruction is useful for both the teacher and the pupils.

### Questions and Problems

1. Define programmed instruction and explain its fundamental principles.
2. What is programmed instruction? Trace its history.
3. Describe the major types of programmed instruction.
4. Name the chief styles of programming being used. Discuss their features and limitations.
5. What are the advantages of programmed instruction?

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# 12

# MICRO TEACHING

*What is micro teaching?—Characteristics of micro teaching—Objectives of micro teaching—Steps in micro teaching—Advantages of micro teaching—Limitations of micro teaching—Summary—Questions and problems—Bibliography.*

Micro teaching is a significant effort to make teacher education programme scientific, effective and meaningful. It is now considered not only a constructive teacher training technique but also "a versatile research tool which dramatically simplifies the logistics of investigating certain teaching skills and learning variables."

Micro teaching was developed by Professors Dwight Allen and Robert Bush, in teacher preparation programme at Stanford University between 1960 and 1967. Today, it is considered one of the most important developments in the field of teaching practice in many countries.

## What is micro teaching?

Micro teaching is like a simulated social skill teaching to provide the feedback to teacher trainee for the modification of teacher behaviour. It is a training concept that can be applied at various pre-service and in-service stages in the professional development of teachers. It provides teachers with a practice setting or instruction in which the normal complexities of classroom are reduced and the teacher gets feedback on his performance.

Micro teaching has been defined differently by the experts. Allen (1960) defines micro teaching as a "scaled down teaching encounter in class size and class time." Urwin (1970) feels that the term micro teaching is most often applied to the "use of closed-circuit television (CCT) to give immediate feedback of a trainee teachers' performance in a simplified environment." They suggest that micro teaching is best viewed as a form of simulated teaching usually incorporating reduced complexity and some feedback placed "along a simulation spectrum ranging from the purely abstract text-book of teaching practice through to actual classroom teaching."

Clift and others (1976), have defined micro teaching as "a teacher training procedure which reduces the teaching situation to simpler and more controlled encounter achieved by limiting the practice teaching to a specific skill and reducing teaching time and class size."

Bush (1968), has defined micro teaching as "a teacher education technique which allows teachers to apply well-defined teaching skills to a carefully prepared lesson in a planned series of five to ten minutes encounters with a small group of real classroom students, often with an opportunity to observe the performance on videotape."

Teaching, as we know, constitutes a number of verbal and nonverbal acts. A set of teaching acts of related behaviours aiming at specific objectives and performed with an intention to facilitate pupils' learning can be called a *teaching skill.* All these teaching skills which go to make good teaching can be defined, observed, controlled and measured by means of practice. Micro teaching concentrates on specific teaching skills or behaviours and provides opportunity for practising teaching under controlled conditions.

Micro teaching is a scaled down sample of teaching. The complex act of teaching is broken down into simple components. Only one particular skill is attempted and developed during micro teaching session. The teaching act is scaled down in terms of the content of the lesson, duration of the lesson, and size of the class. A student teacher teaches a short lesson of five to eight minutes to a small group of pupils, usually five to eight. The lesson is self-contained. A single concept is taken up in the lesson. At the end of the lesson, the pupils in the class leave and the teacher trainee discusses his lesson with the supervisor. Then the teacher-trainee is given time to think about this discussion and modify his lesson plan accordingly. The student teacher *reteaches* his micro-lesson with a *different group of students,* under the same conditions and with the same opportunities for feedback in an attempt to improve his previous lesson. The process can be repeated till desirable skill is developed. The success of micro teaching depends on the *teach-reteach* cycle which can be completed in about 30 minutes.

## Characteristics of micro teaching

Micro teaching has the following significant characteristics:

1. *Micro element:* Micro teaching reduces the complexities of the teaching situation in terms of, (i) number of students to be taught, (ii) duration of the lesson, (iii) subject-matter to be taught to enable the trainee to concentrate on a particular teaching skill at a time. The idea is that one should master the components of the task of teaching before he attempts to perform effectively the complicated task of teaching at macro-level.

2. *Teaching skills and teaching strategies*:

(i) *Pre-instructional skills*—These include writing of instructional objectives, sequencing and organising knowledge to be presented in order to achieve specific objectives, appropriate content, proper organisation, selection of proper audio-visual aids, etc.

(ii) *Instructional skills*—These include skills of introducing a lesson, skills of explaining and illustrating, reinforcement, probing questions, reinforcing pupil participation, diagnosing pupils' difficulties, etc.

(iii) *Post-instructional skills*—These include skills of writing test items, interpreting pupil's performance in a test, planning remedial measures, etc.

Micro teaching enables the trainees to develop these skills and perfect them in such a way as to master the teaching strategies.

3. *Feedback*—In micro teaching several reliable and authentic sources are employed for providing necessary feedback. Some of them are like oral feedback by the supervisor, observation schedules filled in by the peer group participating in the micro lesson, audio and video-tape recording.

4. *Safe practice ground* A micro teaching laboratory possesses all the inherent features of the real classroom. Teaching is performed under simulated conditions with a small group, the trainee is on a safe practice ground.

5. *The teaching models*--The trainee gets many opportunities to study the desired pattern of behaviour through demonstration given by the supervisor, or a tape or a film. With the help of these models as guides, the trainee can develop his own style.

## Objectives of micro teaching

The technique of micro teaching can be used to achieve these objectives:

(i) To enable the teacher-trainees to learn and assimilate new teaching skills under controlled conditions.

(ii) To enable the teacher-trainees to gain confidence in teaching and mastering a number of teaching skills on a small group of pupils.

(iii) To utilise the academic potential of teacher-trainees for providing much needed feedback.

(iv) To give the teacher-trainees training in the component skills of teaching at the pre-service level.

(v) To gain maximum advantage with little time, money and material.

**Steps in micro teaching**

Micro teaching involves the following steps:

(i) *Defining the skill*—A particular skill is defined to student teachers in terms of specific teaching behaviours, and the objectives such behaviours aim at achieving.

(ii) *Demonstrating the skill*—The teacher educator can give a demonstration lesson using the particular skill. Video-tape or a film based on the use of the specific skill, if available, can be shown or the teacher educator can present a prepared "episode" to serve as a model for the trainees.

(iii) *Planning the lesson*—The student teacher prepares a lesson plan based on the predecided model on a suitable topic relating to the particular skill which he proposes to practise.

(iv) *Teaching the micro lesson*—The student teacher teaches the lesson to a small group of pupils. The lesson is observed by the supervisor or video-taped or televised.

(v) *Discussion on the lesson delivered*—The lesson delivered by the trainee is followed by discussion to provide him feedback. Peers who participated in the lesson as learners, peer observers, or the supervisor can provide the necessary feedback. Feedback can also be provided by audio-tape or video-tape recorder. The student teacher observes and analyses his lesson with the help of the supervisor.

(iv) *Replanning the lesson*—In the light of the feedback and supervisors' comments, the student teacher replans the same lesson or a different lesson in order to use the skill more effectively.

(vii) *Reteaching the lesson*—The revised lesson is retaught to a different but comparable group of pupils.

(viii) *Re-discussion or re-feedback*—The lesson is again observed or audio-taped or video-taped. Observations are noted. Feedback is again provided on the re-tought lesson.

(ix) *Repeating the cycle*—The teach-reteach cycle is repeated till the desired level of skill is achieved. The role of the supervisor is very important in the whole process. He should be able to offer continuous consultation to enable the teacher-trainee to perfect his performance in the particular teaching skill.

J.C. Clift groups the elements which go to make up the micro-teaching procedure under three phases:

(i) *Knowledge acquisition phase*—It includes observation of analysis and discussion of the demonstrated skill.

(ii) *Skill acquisition phase*—It includes preparation of the micro lesson involving the skill and practising the skill while teaching.

(iii) *Transfer phase*—It includes evaluating performance leading to feedback, replan and reteach and transfer of skill to actual class teaching in macro-sessions.

**Advantages of micro teaching**

Micro teaching is a training strategy with vast potentials. Researches have shown that micro teaching is feasible and an effective technique in training of teachers.

(i) *Superior performance*—Student teachers have been trained in micro teaching clinics by the Stanford University team in such numbers as 150 college students in eight weeks. They feel that micro teaching training, requiring less than 10 hours per week, is likely to produce performance which is superior to college students who take a more traditional course of study requiring more than twenty hours per week. They have discovered that about 15 to 20 minutes are required before the reteach performance after the criticism of the first teaching, thus the teacher trainee has time to plan meaningful changes.

(ii) *Real teaching*—Although the teaching situation is constructed in the sense that the teacher and pupils work together in a practice situation, all the same, real teaching does take place.

(iii) *Accomplishment of specific tasks*—Micro teaching focuses on training for accomplishment of specific tasks. These tasks may be the practice of instructional skills, the practice of techniques of teaching, the mastery of certain curricular materials, or the demonstration of teaching methods.

(iv) *Increased control of practice*—Micro teaching allows for the increased control of practice. In the practice setting of micro teaching, the rituals of time, students, methods of feedback and supervision and many other factors can be manipulated. As a result, a higher degree of control can be built into the training programme.

(v) *Expansion of the normal knowledge of results or feedback dimension in teaching*—Immediately after teaching a micro-lesson, the trainee engages in a critique of his performance. With the guidance of the supervisor, he analyses aspects of his own performance in the light of his goals. The trainee and the supervisor go over student response. Efforts are made to elicit student reactions to specific aspects of his teaching. When the supervisor has audio or video-tape available he can use audio or video playback to help show the teacher how he performs and how he can improve. All this feedback can be immediately translated into practice when the trainee reteaches shortly after the critique session.

(vi) *Helps in solving some of the problems involved in student teaching practice*—As micro teaching focuses upon specific teaching skills, it enables the supervisor and the student to approach the job in the spirit of mastering the teaching model, rather than trying to initiate the practised performance of a 'master' teacher. The appraisal of the student teaching becomes more objective because he himself is involved in the appraisal of his micro-lesson.

(vii) *Effective in modifying teaching behaviour*—Researchers like Berliner, Young and Young, Borg *et al*, have shown that micro teaching is fairly effective in changing teacher behaviour in the classroom. It helps in decreasing the amount of teacher talk in class discussion, increasing the number of times the teacher uses redirection, increasing the number of times the teacher uses prompting and increasing the percentage of total questions that call for higher pupil order cognitive responses.

The use of micro teaching technique by the B.Ed. student-teachers has proved beneficial in many ways. A study done by Pangotra shows that as a result of micro teaching, there was more of indirect talk; more pupil initiated talk; more questions while guiding the content-oriented part of class discussion and more effective positive teacher talk. A study done by Singh shows that micro teaching was a more effective tachnique as compared to interaction analysis and conventional approaches regarding modification of teaching behaviour.

(viii) *Helps in developing important teaching skills*—A study done by Passy and Shah shows that micro teaching was effective in developing the skills of questioning, reinforcement, silence and non-verbal cues and illustration and use of examples.

(ix) *Effective technique for transfer of general teaching competence to classroom teaching*—Studies have conclusively proved that micro teaching technique is a more effective technique for transfer of general teaching competence classroom teaching than the conventional practice teaching.

(x) *Provides a good prelude to a macro-lesson*—It helps build up confidence step by step, provides continuous reinforcement to the teacher-trainees performance and improves his teaching behaviour. A good micro lesson prepares the way for a good macro-lesson.

(xi) *Different feedback forms—as oral feedback by the supervising teacher, observation schedules filled in by the peer group audio and video-tape recording provide accurate and powerful feedback.*

(xii) *Provides safe practice ground*—A micro teaching laboratory appears to possess all the inherent features of the real classroom. As teaching is performed under simulated conditions with a small peer group, the teacher trainee does not have any inhibitions.

(xiii) *Provides many opportunities to trainee to study the desired patterns of behaviour*—The trainees get many opportunities to study the desired patterns of behaviour through a tape or film of teaching models or a demonstration given by the supervisor. Using these models as guides, the trainees can develop their own style.

(xiv) *Lessens the complexities of the normal classroom teaching by 'scaled down teaching'.*

(xv) *Individualises teacher training*—The technique can enable each trainee to make progress in developing teaching skills at his own rate depending on his ability.

(xvi) *Facilitates the combination of a number of devices*—The mechanism of feedback device can be combined with other devices such as simulated social skill training and interaction analysis which provide continuous reinforcement to the trainee's performance.

(xvii) *Facilitates the development of specific teaching skills*—Various teaching skills as reinforcement, probing questions etc., can be developed.

**Limitations of micro teaching**

(i) *Micro teaching is skill-oriented rather than content-oriented*—The main emphasis is on learning teaching skills—the content which forms the most important component of the teaching-learning process is not paid adequate attention.

(ii) *Emphasis is laid on specific skills*: Broad-based patterns of behaviour are not paid much attention. No wonder the concept of teaching that emerges from this activity is that 'of a complex information processing activity'.

(iii) *Scope of micro teaching is narrow:* Not many skills are developed in micro teaching. Thus the entire process of teaching is not covered by micro teaching.

(iv) *The process of teaching is not the sum total of independent and isolated teaching skills*: The appropriateness of particular teaching skills to a particular lesson has to be carefully ascertained by the teacher. Teaching is an art as well as a science. It does involve certain teaching skills but it also involves certain decision-making as when to use a particular skill, how much to use, when to use, etc. The teacher has to learn these alongwith the teaching skills. It is not a question of either, or but both are required and both should be developed. Micro teaching does lay emphasis on the development of teaching skills.

## Summary

1. Micro teaching is one of the significant efforts to make teacher education programme scientific, effective and meaningful. It is considered one of the most important developments in the field of teaching practice in many countries.
2. Micro teaching has been defined differently by the experts. Micro teaching is a scaled down sample of teaching. The complex act of teaching is broken down into simple components. Only one particular skill is attempted and developed during micro teaching session. The teaching act is scaled down in terms of the content of the lesson, duration of the lesson and size of the class.
3. Micro teaching has some significant characteristics—micro element, teaching skills and teaching strategies, feedback, safe practice ground, the teaching models.
4. Micro teaching to enables the teacher-trainee to learn and assimilate new teaching skills under controlled conditions; to utilize the academic potential of teacher trainees for providing much needed feedback; to give the teacher trainees training in the component skills of teaching at the pre-service level and to gain maximum advantage with little time, money and material.
5. Micro teaching involves these steps—defining the skill, demonstrating the skill, planning the lesson, teaching the micro lesson, discussion on the lesson delivered, replanning the lesson, reteaching the lesson, rediscussion and repeating the cycle.

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4. Micro teaching to enables the teacher-trainee to learn and assimilate new teaching skills under controlled conditions; to utilize the academic potential of teacher trainees for providing much needed feedback; to give the teacher trainees training in the component skills of teaching at the pre-service level and to gain maximum advantage with little time, money and material.
5. Micro teaching involves these steps—defining the skill, demonstrating the skill, planning the lesson, teaching the micro lesson, discussion on the lesson delivered, replanning the lesson, reteaching the lesson, rediscussion and repeating the cycle.

6. Micro teaching has many advantages—superior performance of teacher trainees; teacher and pupils work together; specific tasks are accomplished; practice is controlled; feedback dimension in teaching is helpful; helps in problems involved in student teaching practice; helps in modifying teacher behaviour and developing important teaching skills; provides a good prelude to a macro-lesson; lessens the complexities of the normal classroom teaching by 'scaled down teaching'; individualises teacher training; and facilitates the combination of a number of devices.
7. Micro teaching has certain limitations also. It is skill-oriented rather than content-oriented. Its scope is narrow. The process of teaching is not the sum-total of independent and isolated teaching skills.

## Questions and Problems

1. What do you understand by micro teaching? What objectives can be achieved through this technique? What are the steps in a micro lesson?
2. Micro teaching is a training procedure which reduces the "teaching situation to simpler and more controlled encounter achieved by limiting the practice teaching to a specific skill and reducing teaching time and class size." Discuss.
3. "Micro teaching is a scaled-down teaching encounter in class size and class time." Elucidate.
4. "Micro teaching is a teacher-education technique which allows teachers to apply well-defined teaching skills to a carefully prepared lesson in a planned series of five to ten minutes, often with an opportunity to observe the performance on video-tape." Discuss.
5. What are the steps in micro lesson? Suggest a plan involving a teaching skill of your choice.
6. What are the advantages and limitations of micro-teaching?

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alphabetic order. The role assignments are rotated within the group to give chance to everyone. Thus every member of the group gets an opportunity to be the actor, foil and the observer.

(ii) *Selecting and discussing skills*: The skills to be practised are discussed and the topics that fit in the skill are suggested. One topic each is selected by the group members for exercise.

(iii) *Planning*—It has to be decided who starts the conversation, who will stop the interaction and when.

(iv) *Deciding the procedure of evaluation*: How to record the interaction and how to present it to the actor (student teacher who was teaching) has to be decided so that a proper feedback on his performance could be given.

(v) *Providing practical lesson*: The role players should be provided reinforcements on their performance to give them training for playing their part well.

These activities are merely suggestive. Keeping in view the interests and aptitude of the actor, some changes can be made:

## The use of simulation technique in problems

Flander has suggested the problems of the following type on which teachers use simulation:

(i) The ability to ask open or closed questions and to know when each is appropriate in classroom teaching.

(ii) The ability to ask a question which lifts the current level of abstraction, a question which lowers it, and the ability to ask a series of questions which gradually lift or lower the level of abstraction.

(iii) The ability to ask questions in which the concepts and logical connectives have previously been expressed by pupils.

(iv) The ability to summarise what pupils have said and then end by asking a question which moves the discussion to the next step in a logical sequence of problem-solving.

(v) The ability to make constructive use of ideas previously expressed by pupils, (a) by acknowledging or paraphrasing it; (b) by making comparisons to authoritative sources or task requirements; (c) by comparing the ideas expressed by one pupil with those of another, or with something that the same pupil said earlier.

(vi) The ability to use phrases which explain the 'because' aspect of praise, criticism so that reasons for asserting this kind of teacher authority become public and do not ramain hidden.

(vii) The ability to listen to the pupils' ideas and to organise them in terms of teaching objectives in order to reinforce selectively

# 13

# SIMULATION

*What is simulatian?—The procedure—The use of simulation technique in Problems—Activities in simulation—Designing a simulation—Advantages of simulation in teacher education—Limitations—Summary—Questions and problems—Bibliography.*

## What is simulation?

Simulation can best be defined as role-playing in which the process of teaching is displayed artificially and an effort is made to practise some important skills of communication through this technique. The pupil-teacher and the students simulate the particular role of a person or actual life-situation. The whole programme, thus, becomes a training in *role perception* and *role playing*.

The simulated-techniques comprising role-playing, socio-drama, gaming, etc., are based on the following assumptions:

(i) There are certain patterns of behaviour which are crucial to effective classroom instruction.

(ii) These patterns of behaviour can be described.

(iii) These patterns of behaviour can be practised.

(iv) Their appropriate use in teaching can be discussed and understood.

Simulation techniques work in a group. The *smaller* the simulated social skill training group, the more practice per person when assignments are related. Three to five individuals per group is the optimum group size. One trainee acts as an actor and the other provide the spontaneous setting for practising specific patterns of behaviour. The assignments of the actor and the foils (who provide the spantaneous setting) are rotated.

## The procedure

The following procedure is adopted in simulation:

(i) *Selecting the role players*: A small group of four or five student teachers is selected. They are assigned different letters in an those ideas which are more on target, yet encourage all contributions by at least acknowledging the target ideas.

(viii) The ability to guide discussions and clarify the first steps required to start work.

### Activities in simulation

*Role playing*: The role, false or actual, is performed in an artificial environment. This may give the pupil an understanding of a situation or relationship among real life participants of a social process. He will gain some perceptions of the actions, attitudes and insight of persons or situations.

*Socio-drama*: It seeks to utilize role-playing as a means of finding out the solution to a problem situation assigned to the role-players. The problem may be false or based on real life situation, and the actor is required to find out an acceptable solution of the situation.

*Gaming*: Here the situations employed involve outcomes affected by decisions made by one or more decisions. The game may be designed in a manner which enables chance to affect the outcome.

### Designing a simulation

Different kinds of simulation need different kinds of organisation. So for designing a simulation, the first thing we have to do is to be specific about the educational objectives of the exercise.

While considering the method, we should ensure that every participant is involved in playing the game. Roles may be so organised that they are developed by a group of pupils or the class is divided into sets, each one of which plays the simulation separately.

We should also be clear about the length of the simulation period. The period should be just long enough to fit into a time table period. To achieve this aim, the designer may first play the game by himself, see how long it takes and then modify it according to a period length of time. It is also possible that a game is broken into different parts so that it becomes an ongoing game and each part fits into a time-table pattern.

### Advantages of simulation in teacher education

(i) Simulation establishes a setting where theory and practice can be combined.

(ii) Simulation requires the teachers to be active participants in the process.

(iii) There is no risk involved. The decisions are made and carried out without physical or psychological harm to children or school as a result of practice teaching.

(iv) Controlled teaching assignments are possible. Student teachers obtain experiences which are realistic and thus they become critical.

(v) Simulation is a teaching device that motivates and involves students. It changes student teacher behaviour. It has been said to impart at least an equal amount of student teaching.

(vi) Students in a simulation programme are not expected to identify the group time and follow it. Every student is expected to have experiences which are different from the usual laboratory type experiences common to all. Thus simulation enables the student to be himself.

(vii) Simulation stimulates the students for the acquisition of purposeful activities and they feel keenly interested in role-playing, socio-drama and gaming activities.

### Limitations

Simulation procedures have certain limitations:

(i) *Minimum of feedback sequence to choose from*—There are many different ways for a teacher to present any event in the classroom and there are many ways in which students can react to the teacher. The feedback provided by a simulation is not total but only the most likely feedback.

(ii) *Time consuming*—If classroom teaching is to be carried on through this technique, a lot of time is required.

(iii) *Difficulty in using analytic approach*—An analytic approach to problem-solving becomes a problem.

(iv) *Need for many simulators*—There is a need to build many additional simulators since instruction is individualised. If the simulators are not many in number, only a few students can undertake simulation training.

Simulation is one of the powerful methods of training which is helpful in teacher preparation. It can be a valuable element in the practical professional training of student teachers.

### Summary

1. Simulation can be defined best as role-playing in which the process of teaching is displayed artificially and an effort is made to practise some important skills of communication through this technique.
2. The procedure adopted involves selecting the role-players, selecting and discussing skills, planning, deciding the procedure of evaluation and providing practical lesson.

3. Flanders has suggested a number of problems on which simulation can be tried.
4. Simulation involves the use of role-playing, socio-drama and gaming.
5. Simulation is useful in a number of ways—it establishes a setting where theory and practice can be combined; it makes teachers active; there is no risk involved; controlled teaching assignments are possible; it motivates and involves students; it enables the student to be himself; it stimulates the students for the acquisition of purposeful activities.
6. Simulation has some limitations. There is minimum of feedback sequence to choose from; it is time consuming, analytic approach to problem-solving becomes difficult; there is need to build many additional simulators.

## Questions and Problems

1. What is simulation? Suggest problems on which this technique can be used. What are the advantages and limitations of this technique?
2. Discuss the procedure which may be adopted in simulation. What activities can be used in this technique?
3. Suggest a simulation design. How can simulation be useful in teacher education?
4. What is team teaching? Discuss the need for team-teaching.
5. What are the different methods of organising the teams? What are the different approaches suggested by David Warwick? Suggest guidelines to make team teaching successful.

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# 14

# TEAM TEACHING

*What is team teaching—Organisation of teams—Patterns of team teaching—Guiding principles in team teaching—Advantage of team teaching—Summary—Questions and problems—Bibliography.*

The long standing notion of a self-contained classroom of 30 pupils taught by one teacher, is giving way to alternative proposals. One of these proposals is team teaching. Team teaching is one of the innovations in instructional organisation to ensure optimum use of resources, interests and expertise. It is a new movement concerned with the quality of education and the restructuring of our schools so that they promote its advance.

## The background

Team teaching had its origin in America in the mid-1950's. Drawing strength from an alliance with several of the great universities and championed by bodies such as the National Association of Secondary School Principals and the National Education Association, by 1964, it had caught the imagination of some 1,500 teachers, whilst about 45,000 pupils were being instructed under team-teaching methods.[1]

It was suggested in the 1959 Report—*Images of the Future*—that three broad groupings of pupils might replace conventional classes and that each of these groupings could have specific roles to play in the work of a school. Forty per cent of the scheduled time might be spent in large groups of about one hundred where the emphasis would be on pupil stimulation, motivation, enrichment, planning of activities, etc. Teachers, in this area, would be specialists and a wide range of audio-visual aids needed. Another forty per cent of the time would be spent by pupils, in small groups of twelve to fifteen, the teacher acting as counsellor or consultant. Finally, 20 per cent of the time available, would be spent on individual study or in groups of two or three. Here a variety of activities would be involved—reading, research, experimentation, writing, listening to pre-recorded tapes, viewing, photographic material and so on, under the guidance of a tutor.[2] By 1965, the technique had become extremely sophisticated both in its organisation and presentation of material.

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[1] J.T. Shaplin and H.F. Olds, *Team Teaching*, Harper and Row, 1964, p. 2.

Team teaching reached England in the early 1960's and it first took root in the schools rather than the universities. Developments, both in the primary and secondary schools, favoured such an innovation. Teachers associated it with a more forward-looking approach and a desire to link school with the community and future work in a way not previously possible.

American team teaching ventures gave further impetus to the implementation of team teaching in England. More schools took up the idea. Almost every school advanced along its own lines. In 1964, the school council was formed. This council was given the responsibility of co-ordinating and promoting such venture. In England, team teaching was introduced largely to meet a need e.g., staffing problems had to be solved; facilities were inadequate; framework was needed for mixed ability groupings; the school learning age level was to be raised, etc., but the merits of team teaching, as an educational innovation, were not realised.

### What is team teaching?

Team teaching has been defined differently by different writers. In the words of Shaplin and Olds, "Team teaching is a type of instructional organisation, involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility, working together for all or a significant part of the instruction of the same group of students."[3] According to Lloyd Trump and Darsey Baynham, "Team teaching is an arrangement whereby two or more teachers, with or without teaching aids, co-operatively plan, instruct and evaluate one or more class groups, in an appropriate instructional space and given length of time, so as to take advantage of the special competencies of the team members."[4] David W. Beggs says, "A teaching team is a systematic arrangement with a leader and assistants, and with an optimum use of technology cooperatively instruct a group of students, varying the size of the student groups and procedures with the purpose of instruction, and spending staff time and energy in ways that will make the best use of their respective competencies."[5] David Warwick defines team teaching as "a form of organisation in which individual teachers decide to pool resources, interests and expertise in order to devise and implement a scheme of work suitable to the needs of their pupils and the facilities of their school."[6]

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[2] David Warwick, *Team Teaching*, University of London Press, p. 14.

[3] J.T. Shaplin and H.E. Olds, *Team Teaching*, p. 15.

[4] J. Lloyd Trump and Darsey Baynham, *Guide to Better Schools: Focus and Change*, Rand McNally, 1963, p. 85.

[5] David W. Baggs (ed.), *Team Teaching: Bold New Venture*, Unified College Press, 1964. p. 76.

An analysis of above definitions reveals the following characteristics of team teaching:

1. It is a form of instructional organisation.
2. A number of teachers join hands and decide to take action. It is not imposed upon them. The cooperating members fully understand it, they are enthusiastic about it and have to be prepared to give the time and energy to make it work.
3. Resources are pooled for the benefit of all concerned. These resources include factors such as specialisations in interests, knowledge, skills, experience. They also include more tangible factors such as periods on the time-table, departmental equipment and facilities and free time for meetings.
4. Team teaching centres on the needs of the pupils.

### Organisation of teams

1. A number of specialist teachers may join hands in a single subject throughout the school.
2. Specialist teachers may join hands but restrict their efforts to a particular age-group.
3. Subject specialists, from different fields, may work together with a mixed age and ability group.

### Patterns of team teaching

Various patterns of over-all planning can be used according to the age of the pupils, the area of the curriculum, and the nature of the materials. Four such approaches have been suggested by David Warwick:

1. *Thematic approach:* In this approach, there is a running general *theme* throughout the work. This theme might be fairly abstract, "War and Peace", "Power", "Capital" etc. It might have a strong factual content—"Our Community", "The Physical Features of India", "Early Civilizations." Stemming from this theme are a series of linked topics and students will study each of the topics in turn, so that their actual presentation takes the form of a *large lead lesson* and follow-up work suited to the needs of the pupils and the nature of the material. Each unit of work lasts for a

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[6] David Warwick, *Team Teaching*, University of London Press, p. 14.

certain number of weeks, after which a new unit, based on the next topic is introduced.

2. *Concurrent themes:* In this approach, two or more themes are in operation together with the same group of children. For instance, the mathematics department may decide to complement a geographical study of rainfall and temperature with one of its own 'graphs'. In this way, courses will be run on independent, yet parallel lines, having continual cross-reference and links with each other. Exchange of classes and the joint use of equipment and materials could be arranged, yet maintaining their independence of them.
3. *The cumulative sequence:* It is another way of organising the contributions of various departments to a team teaching scheme. In this sequence, no theme is presented to the pupils at the outset, but an overall pattern is built up as the work proceeds. Programmes are linked consecutively, like beads on a necklace, but their relevance to other programmes in the sequence does not become apparent until the final phase of the scheme. This approach is more suitable for older or more academic pupils, but it can be adapted for use with younger children also.
4. *The concentric pattern*: In this approach, the starting point is something the student knows well. From this something, the syllabus radiates outwards and can be related at any point to the daily life or corporate existence of the pupils concerned. Thus, the first programme may be simply called 'Me' and deal with such matters as the physical working of the body, hobbies, sports, pastimes, earning the living and spending the amount.

Later, short programmes of one to five weeks' duration could deal with a progressively widening range of topics e.g., 'My Parents', 'My Neighbours', 'My Work', My Home'. Another concentric approach could deal with Communities—School Community, Local Community, Town/Village Community, etc. Concentric approach is generally used with young students.

### Guiding principles in team teaching

1. *The size and composition of the team should be appropriate to its purpose*: For some purposes, it may be the most convenient and most effective to assemble two or more classes of pupils. For others, much smaller groupings are desirable. For some others, individual tutoring and private study are essential. For still others, mixed ability groupings may be preferred. It is very essential that the size and composition of the team is appropriate to the need of the learning situation.

2. *The time allotted to a group should also be appropriate to its objectives*: A fairly flexible time-table is essential. All lessons should not be of the same lenghth.
3. *The learning-environment, too, must be appropriate to the activities of the group*: The conventional classroom, laboratories, libraries, workshops, farms, halls and individual study corners are all needed and should be utilised.
4. *The jobs assigned to teachers must be appropriate to their special qualifications and interests.*
5. *The level and style of instruction must be appropriate to teach learners in the group.*

### Advantages of team teaching

1. *Ensures economical use of resources*: Ours is an age of large secondary schools, a number of sections in a single class, a number of teachers teaching a single subject. It means subjects are taught to different sections, at different times by different teachers. If audio-visual material is used, it will tend to be used in the most uneconomic fashion, the same equipment being used a number of times. This is wastage of equipment and materials such as film projector, bulbs, electricity, blackout rooms and above all, an important factor—teacher energy. When students are organised in teams consisting of 100 or 200 students, economic use of material and an efficient use of manpower is ensured.
2. *Ensures interested and enthusiastic teaching*: While planning, the teachers consider their own skills and divide the classroom teaching accordingly. Some attempt can be made to give the 'feel' of a period in history, evoke the physical sensation of a geographical location, awaken sympathy with a character in fiction or get spiritual concepts across. Similarly, one teacher may be good at presenting ideas, while another is best at teaching the slow learners or is able to diagnose a learner's needs. Another does well in correcting written expression. Through observing one another and planning together, team teachers deepen their sensitivity of the complexities of teaching and learning. Thus, students can get the best of their teachers and teachers can give the best of themselves to the students.
3. *Deploys teachers to methods and areas of their expertise*: Teachers can concentrate on those areas for which they have expressed preference or have specialised knowledge. Their time and energies can thus be used far more economically and effectively.

4. *Makes teaching experience-centred*: Team teaching ensures complete afternoons being given to realistic field-work of all kinds; the availability of two or more members of staff involved in one project; a breaking away from the conventional form of classroom divisions; and blocking of the school time-table to give the facilities and space required. *Team teaching seeks to cast off the concept of the teacher as the '2-4-7 man'—someone more at home within the two covers of a text-book, the four walls of a classroom, and the seven periods of a school day. It cuts across academic boundaries and makes work experience-centred.*
5. *Provides a framework within which subject integration is possible. Team teaching places the needs of children above the needs of the subjects.*
6. *Makes teaching pupil-centred*: Pupil's needs and reactions decide the direction and scope of the syllabus. It provides a good 'bridge' between the closely built primary school community and the more impersonal world of the secondary school. It continues the much-needed primary school emphasis upon activity work and discovery methods. Lessons can be 'tailored' to fit the needs of the pupils.
7. *Provides opportunities for staff cooperation*: Team teaching allows a glimpse to teachers of their colleagues at work. It gives an opportunity to compare methods and approaches. Unknown and unsuspected talents, interests and experiences are revealed. Teachers come to know that Mr Malhotra has a special knack of screening films, Mr Harbans Singh has specialised on religion, Mr Bansal has visited America and can tell a lot about the Americans, their customs, manners, etc. Such skills abound in any school. When teachers work in isolation, these remain unutilised. Team teaching helps break this isolation and prepares the ground for an effective use of talents for the benefit of all concerned.
8. *Takes students out of the classroom into the real world*: It narrows down the gap that has so far been separating schools from actual life. As Warwick points out, "Traditionally our schools have held themselves aloof from society at large. A part of the neighbourhood, yet essentially apart from it, they have been regarded, both from within and without, as case of cluture in a wilderness of ignorance and anarchy."
9. *Helps in smooth sailing from the elementary level to the high school level and then to the college level*: There is the utmost understanding among students and teachers, which fosters mutual trust and co-operation, and creates the most suitable atmosphere for learning and teaching.

*Team teaching provides experimental framework in which all or most of the current reforms can be incorporated and integrated. It has vast potentials for our country.*

### Summary

1. Team teaching is one of the innovations in instructional organisation to ensure optimum use of resources, interests and expertise.
2. Various patterns of overall planning can be used—David Warwick suggests four approaches—Thematic approach, Concurrent themes, Cumulative sequence, Concentric pattern.
3. Team teaching ensures economical use of resources, interested and enthusiastic teaching, deployment of teachers to areas and methods in which they feel most at home; makes teaching experience-centred; provides a framework within which subject integration is possible; provides opportunities for staff co-operation.
4. Team teaching has vast potentials for our country.

### Questions and Problems

1. What is team teaching? Dicuss the need of team teaching.
2. What are the different methods of organising the teams? What are the different approaches suggested by David Warwick? Suggest guidelines to make team teaching successful.

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# 15

# THE KINDERGARTEN METHOD

*Underlying philosophy—Froebel's educational principles—The how of this method—Gifts and occupations—The teacher and the gifts—The curriculum—The Kindergarten—Merits of the method and its contribution—Limitations—Conclusion—Summary—Questions and problems—Bibliography.*

No educational theory has been more followed in actual practice than the Kindergarten method. Kindergarten has been declared to be "by far the most original, attractive and philosophical form of infant development—the world has yet seen." The creator of this method was Friedrich Wilhelm August Froebel.

## Underlying philosophy

Froebel's system of education, whereas it is clear and palpable to the youngest child, it also contains in itself all philosophy. His system cannot be separated from his philosophy which he inherited, and by which, through his attendance at the University of Jena, he could not but be influenced was the *idealism* initiated by Kant and developed by Fichte, Schelling and Hegel. Thus, we shall see that the Kindergarten method is coloured by his idealistic philosophy.

1. *The principle of unity or interconnectedness*: Froebel believes in an internal law which governs all things. He sees a unity in all diversities. To him this unity is the Unity of God. God is Almighty. Every thing comes from Him. God alone is the source of all things which are interconnected. "All things live and have their being in and through the divine unity, in and through God... Nature as well as existing things, is a manifestation, a revelation, of God." Froebel believed that the principle underlying all creation was one. Hence he concluded that there must be continuity in the Universe. He believed that the whole universe is simply a unity and this unity is three-fold.

(i) *Unity of substance*: Man and nature are made of one substance.

(ii) *Unity of origin*: God is the origin of all things.

(iii) *Unity of purpose*: All things strive towards perfection i.e. God.

2. *The principle of development*: Froebel believes that life is characterised by continuity; it is even evolving and developing. All parts of the universe are growing from within through the force of their own being. Thus, dynamic growth from within is a manifestation of the striving towards the same eternal unity.

3. *The principle of self-activity.* The third principle of his philosophy is that real growth and development is possible only through self-activity. This self-activity is innate to us. Children reveal spontaneous activity in their thoughts and movements in an atmosphere of freedom. Play is the characteristic activity of childhood. It is the self-active representation from inner necessity and impulse. There is unity in play and work as work replaces play in boyhood. Both play and work, as modes of self-activity, are means to the individual's self-realisation. It is only through them that the spiritual divine self assumes an outward form. Froebel writies, "Each human being must develop from within self-active and free, in accordance with the eternal law. This is the problem and the aim of all education in instruction and training; there can be and should be no other."

**Froebel's educational principles**

Froebel's educational principles grow out of his idealism and these can be summed up as follows:

1. *The child must be educated in accordance with the laws of his development*: From the study of religion, science, comparative anatomy and from "stones and spiders' webs," Froebel drew the conclusion that all nature had a plan; and that the active, creative organism, which a man is part of nature. To fulfil this plan man must be educated in accordance with the laws of his development. Froebel believed that child has certain purposes which he works out as far as conditions permit. Froebel's central idea of education *Darstellung* means "living out" what is clamouring for utterance in the heart. Child is to give expression to ideas, emotions, beliefs, desires and purposes in him and education imparted to the child must be in accordance with his inner needs. Thus, upon the native tendencies, Froebel wants to 'graft' a habit or custom, a mode of activity and of thought which is approved as a desired educational end. Education is to help nature to guide it to ends higher than those it would reach unaided, or at least to secure those ends by reading and more direct means. Education should not be prescriptive, categorical, interfering but should provide for "free self-activity and self-determination" on the part of man who is created for freedom in the image of God.

2. *Education should enable the child to realise unity in diversity.* The aim of education, according to Froebel, is to enable the child tc

realise unity in diversity. The school, he said, should not "communicate a variety and multiplicity of facts" but should teach that there is an everlasting unity in all things. Remarking about the function of education, he said, that it "should lead and guide man to clearness, concerning himself and in himself, to peace with nature and to unity with God."

3. *Froebel gives importance to creative self-activity through social participation*: He believed that education is a natural process of growth through activity. Self-activity helps the instruction to go on steadily, continuously, gradually and inwardly. It manifests in the child a desire to enter into the life around it, to help, to find out, to discover and to participate in common activities. Froebel believes that development of self-activity is essentially creative. Man is, he said, by nature an active and dynamic being. He is not a receptive and passive observer of events. He must create. Froebel wants that all educational processes should take as their starting point the natural inclination of the child to express himself in action.

4. *Froebel saw the problems of education against a sociological background.* Froebel does not want to take the pupils out of society, as Rousseau did. On the contrary, he made full use of group motives and activities at home, school and community. From this standpoint, Froebel's system of education complemented Rousseau's by providing the richer and more stimulating environment. School, according to Froebel, has a social significance, as the individuality emerges through the experience of group relationships and activities. The school should enable a child to discover his own individuality, work out his own personality and develop his power of initiative, and execution. These the child can achieve through co-operation with others in similar endeavours in work where interest was shared by all, responsibility borne by all and rewards enjoyed by all. "His kindergarten or school," says Hughes, "was a little world where responsibility was shared by all, individual rights respected by all, brotherly sympathy developed by all, and voluntary co-operation practised by all."

5. *Froebel developed both the theory and practice of play in education*: Froebel, although not wholly original, is the great exponent of play in education, developing both its theory and practice. He marked the idea of kindergarten. Froebel says, "Play is self-active representation of inner necessity and impulse. Play is the purest, most spiritual activity of man...It gives, therefore, joy, freedom, contentment, inner and outer rest, peace with the world." He saw the child brimful and overflowing with outgoing impulses; and he also saw the child's need for new materials, for companions and for direction and guidance. Froebel believed that speech and activity develop together and before the child understands words he can understand tones and gestures, so that forms the education for the first stage. For the next stage, Froebel prepared the "gifts," number games, rhythmic plays,

dances and songs, drawing and geometric studies, and group games involving speech and co-operation. (The activity of the senses and the limbs of the infant comprise the bud, and games, building, song are the early blossoms of child development.) Boyhood is the third stage and its play shows greater complexity and continuity. Collecting, gardening, building play-shelters and boats, exploring and the owning of personal possessions are prescribed. The child should have his garden, his own room, tools and books, as means to the development of his individuality. As the child grows older—these play tendencies are sublimated so that they become the attitudes of his normal life. Enterprise, exploration, purpose and joy in performance are to characterise his later studies and his adult life.

6. *Froebel combined play and work*: Froebel for the first time erased the distinction between play and work--he said, these two are one. He believed that playful but serious activity in the production of some desired objective is essential. Schools without working hours dissipate the precious energies of the child. Education may not be *soft* but it must be *playful*. Froebel emphasized that play has intellectual and moral values and, therefore, can be exploited for serious work.

7. *Froebel's concept of the individual is genetic*: Froebel made out five stages—infancy, childhood, boyhood, youth and maturity, but these are not sharply separated from each other. While in infancy, he emphasizes the sensory development, in childhood his emphasis is on play. While childhood is characterised by making the internal external in boyhood the process is reversed. Education in boyhood has to be derermined by environment and not endowment as in childhood. Feeling now gives place to thought and play to instruction. It is now to be curriculum-centred and not child-centred. Characteristic activitv of childhood was play but that of boyhood should be work. The child takes interest in the *process*, the boy takes interest in the *product*.

8. *Froebel recognised the unitary character of human nature and its growth through the activity of all his parts*: Froebel believed that head, soul and hand are inseparable. They are interdependent parts of man and must be developed together. Mind and soul express themselves and grow through bodily activity and expression. He condemned intellectualism and verbalism and advocated that thinking must express itself in doing, otherwise education would remain unproductive.

9. *Froebel emphasised that instruction should not be arbitrary*: Education should not aim at making the child mind a store of information which he can utilize for his immediate purpose. It should always be slow, continuous and gradual in leading child from the simple to complex, from the concrete to the abstract. The information to be imparted to the child should be natural and suitable to the present requirements of the child.

10. *Froebel advocated the inclusion af manual instruction in the school curriculum*: He believes that child is by nature a doer; and learning is secondary to doing, out of which it grows. Manual work is a necessary condition of the realization of the pupil's personality; through it he comes to himself. All the constructive work, Froebel believed, manifests outwardly what the child feels inwardly. Froebel found a spiritual, even an occult, meaning in the handling of material objects by the child. "He becomes truly God-like in diligence and industry, in working and doing, which are accompanied by the clear perception or even by the vaguest feeling that thereby we represent the inner in the outer; that we give body to spirit and from to thought, that we render visible the invisible." Froebel said constructive work is the most concrete form of expression of ideas, a most definite process in the formation of habits or the shaping of character.

11. *Froebel gives industry and religion proper places*. Froebel opined that it is through religion and industry that personality is formed. Religion without industry, said Froebel, ends in visions and dreams, and industry without religion degrades man into a beast of burden and makes him a means, when he should be an end.

12. *Froebel interpreted education in historical and evolutionary terms*: Froebel said that the child, the youth, the man contribute to the resources of the race; and the resources of the race are the materials with which the education of the race is carried on. By disivery , invention, and transmission, the child, youth and man build covilization, and thus in a historical process, by natural scientific methods, fulfil the divine plan which is the Will of God.

13. *Froebel considered childhood as the most important stage of the total developmont of man and humanity*. Froebel says, "The earliest stage is the most important one for education, because the beginning decides the manner of progress and the end."

### The how of this method

As mentioned earlier, Froebel's kindergarten is a miniature state for children. The kindergarten school is a school without books. There are no set intellectual tasks. Self-activity, creativeness and social cooperation find complete application and concrete expression. The training in a kindergarten consists of three co-ordinate forms of expression (1) song, (2) movement, (3) construction. According to Froebel the child expresses his feelings and ideas through singing, gestures and construction. On this belief he demanded that everything to be taught to the child must be expressed to him through these activities. These three activities are to go together though the means adopted for each of them may be quite distinct and separate. For instance, when the story is told or read it is first expressed in song, then it is dramatized in movement and gesture and finally it is illustrated by constructive work from blocks, paper, clay or other material. "In this way, ideas would be given, though stimulated, the imagination vivified, the hands and eyes trained, the muscles coordinated, the moral nature strengthened through the effort to put into concrete objective form the higher motives and sentiments aroused." Froebel did not regard song, gestures and construction as isolated means to educate the child. He thought of them as three coordinate forms of expression in the child. He saw an organic relation between them.

### *Song, gestures and games*

All the songs are about common objects of life. They are intended to exercise the infant's limbs and muscles. Every song must relate a nursery game and must correspond to a special physical, mental and moral need of the child. The selection and order of the songs is determined according to the development of the child. Each song of Froebel contained three parts (a) a motto for the guidance of the mother or teacher, (b) a verse with accompanying music, to sing to the child, (c) a picture illustrating the verse.

### **Gifts and occupations**

Froebel's study of children showed him that a child is restless both in mind and body. Children, he said, are anxious to move their limbs and their mind. They are curious. Froebel devised gifts and occupations for this purpose. They are mainly meant to stimulate activity.

### *Gifts*

As materials for the children's play, Froebel selected three forms, the *sphere*, the *cube* and the *cylinder*. These are the basic gifts, as he called them. The spheres of the kindergarten were balls which children rolled and tossed; the cubes were used as building blocks; and the cylinders, as a mediating form between the other two, could be used as either stationary or movable elements in the plays. Many elaborate plays were worked out; squares, triangles, sticks and rings were included in use for construction. These objects were considered as typical of nature and art and Froebel held the view that nature and art form a unity and that the highest form of unity is God.

Gifts and occupations are introduced gradually and in order. As the child becomes familiar with the characteristics of one gift or one activity, he is led on to the next, which grows out of the previous one each introducing new impressions and repeating old ones.

Gifts and occupations were meant to stimulate activity. The gifts combine and rearrange certain definite material without changing the form, while the 'occupations' reshape, modify and transform their material.

The gifts are altogether twenty in number but the first seven are only called by this name now.

### *The first gift*

The first gift is the sphere. It consists of six woollen balls contained in a box. The balls are of different colours, three in primary colours, red, yellow and blue—and three in secondary colours—orange, green and purple. Six detachable strings of the same colours are also attached to these balls. The balls are to be rolled about in play and thus develop the child's ideas about colour, material, form, motion, direction and muscular sensibility. Froebel would give the ball to the child at the age of three months. This would lead the child immediately to play. The ball symbolises the unity of the universe and the child's own nature. In and by means of the ball (as an object resting in itself, easily movable, especially elastic, bright and warm) the child perceives his life, his power, his activity, and that of his senses at the first stage of his consciousness, in their unity, and thus exercises them...The ball is, therefore, to the child a representative or a means of perception of a single effect caused by a single power.

It elicits in him his own inner idea of that unity and his participation in it. The game of the ball stimulates and trains the sense and muscles and his power of attention. It also infuses in the child confidence in his own ability. The moving ball, sometimes in his grasp and sometimes out of it would teach him the meaning of such things as space, time, the past, present and future. The mother or the teacher sings in imitation and description of the motion of the ball. The child learns the meaning of the words 'up,' 'down,' 'out,' 'around' etc. As the child grows older, the motion of the ball becomes a symbol of life.

### *The second gift*

The second gift is a sphere, cube and cylinder of hard wood. The sphere, is to the child the representative of every isolated simple unity. The child gets a unit in the sphere of manifoldness as still abiding in unity. The cube is to the child the representative of each continually developing manifold body. The child has an imitation in it of the unity which lies at the foundation of all manifoldness, and from which the latter proceeds. In sphere and cube, considered in comparison with each other, is presented in outward view to the child the resemblance between opposites which is so important for his whole future life, and which he perceives everywhere around himself, and multifariously within himself.

When the child plays with them, he learns to compare the stability of the cube with the movability of the sphere. The child also learns that the two are harmonised in the cylinder. The handling of a ball or sphere is supposed to give the child the sense of the perfect unity of all things. Sitting in a circle also makes the child feel his identification as an individual with a social group. Thus he is led to realise the unity of all mankind in the Absolute.

### *The third gift*

The third gift is a large cube divided into eight smaller equal cubes. The child can build up a number of useful, original forms, out of these such as benches, bridges, steps etc. This gift is often called the 'first building box' as it is the first in giving training in construction. This gift helps in teaching the child the relation of the parts to the whole and to one another. The child can learn elementary addition and subtraction by manipulating these small cubes.

### *The fourth gift*

The fourth gift is a large cube divided into oblong prisms in each of which the length is twice the breadth and the breadth is twice the thickness. The child learns to construct different kinds of building patterns when combined with the third gift. When the teacher presents the gift, the cube song is sung. The cube song is as follows:

As cube I stand here in my place,
As surface now, I show my face,
Yet always am the same,
I like this pretty game.
Now without delay,
Divided me in your play,
Making fleetly,
But yet neatly,
Two quite equal parts.

### *The fifth gift*

This gift is just like the third gift. It consists of a large cube divided into 27 small cubes, three of which are again divided diagonally into halves, and three into quarters. Many artistic forms and patterns can be constructed by combining the third, fourth and fifth gifts.

### *The sixth gift*

This gift is similar to gift four. It is a large cube divided into eighteen whole and nine small oblong blocks. The child can make still more beautiful designs out of it. This gift helps in teaching numbers.

### *The seventh gift*

This gift consists of a set of squares and triangular tablets of very fine wood in two colours. It provides material for many exercises in geometrical forms and mosaic work.

### *Other gifts*

In the gifts other than the seven mentioned above, there are sticks, tablets and rings to play with. While playing with these gifts, the child gets the ideas of lines, surfaces and points and their interconnections. The child has to engage himself in making a number of constructions with paper, sand, clay, wood and other materials.

*Occupations*

Froebel's 'occupations' are as important as 'gifts'. They comprise a long list of construction with paper, sand, clay, wood and other materials. There are many others like mat and paper weaving, stick shaping, sewing, bead-threading, paper pricking and drawing. These occupations lead to closer identification of the child with the divine spirit and social unity.

**The teacher and the gifts**

The teacher has a very important role to play in the proper use of gifts. While the children are offered gifts, the teacher has to suggest the occupations connected with them. He has to demonstrate certain activities to them. When the teacher presents the gifts she sings a song connected with them and thereby tries to help the child to form appropriate ideas.

The teacher is alert to the fact that while engaged in motor activities, the children are also experiencing feelings, and are learning ways of getting along with their peers. She is constantly aware of the relationships that exist between the children during their play, and helps them to interpret the feelings which exist as the play develops.

The teacher looks for clues to the feelings that the children are experiencing.

Children often learn best as they work through for themselves the situations in which they find themselves. They need guidance always, but not necessarily direction. Teachers need the ability to time their interaction with the children and pace their guidance in turn with the children's developing abilities.

Each teacher should have, as part of the fibre of her being, an appreciation of each child as similar to others, but also unique. She must be able to accept other people as they are, without antagonism or the wish to make them over. She must have warmth toward others.

The teacher should be aware of individual children as members of a group and the group as made up of individuals.

**The curriculum**

*Manual work*. Froebel advocated the inclusion of manual instruction in the school curriculum. He said that constructive work should be the beginning and the end of the educational process. Manual work. Froebel said, is a necessary condition of the realisation of the pupil's personality; through it he comes to himself. Every child, boy and youth, whatever his condition or position in life, should devote daily at least one or two hours to some serious activity in the production of some definite external piece of work. Froebel emphasized the manual and industrial training, because it gave expression to an idea or purpose. All constructive work, he believed, manifests outwardly, what the child feels inwardly. Such manifestation of ideas are the basis of the higher power of expressing the intellectual, moral and spiritual life in action.

Whereas Rousseau emphasised manual work for social and economic grounds and Pestalozzi for developing sense perception, Froebel emphasised the manual work for the spiritual significance. It will help the child in rendering the inner outer.

In addition to manual instruction, Froebel also recommends the introduction of such subjects as drawing, nature-study and school gardening. Like Herbart he insists, on an all round development as the aim of education. He divides the educational curriculum as follows:

(a) Religion and religious instruction
(b) Natural science and mathematics
(c) Language
(d) Art and objects of art.

### *Nature-study*

Froebel gives nature-study a very important place in the school curriculum. By prescribing the study, he was the least concerned with the facts about nature. He desired that the child should "have moral improvement, religious uplift and spiritual insight" by coming into contact with nature. Nature-study affords the child opportunities for numerous activities. It suggests material for reading, writing, language work, constructive work and number work. He does not want nature to be analysed and dissected. He wants to study nature "as life, the plant as development, the animal as acting, the organ as functioning."

### *Art and objects of art*

Froebel felt that to have the full and all-sided development of human beings, art must be introduced as a subject in the school curriculum. He states, "Its intention will not be to make each pupil an artist in some one or all of the arts but to secure to each human being full and all-sided development."

### *Mathematics*

Froebel emphasised the importance of mathematics. In his opinion, this subject is a connecting link between the mind of man and the natural world. Mind and mathematics, he says, are inseparable as the soul and religion.

*Languages*

Froebel emphasised the study of languages because these help in establishing the inner living connection among the diversities of things and thus complete the work of education. "The child must learn to use many languages, the languages of sports, of art, of algebra and geometry, and so on, if he would give expression to the world within and understand the world without."

**The kindergarten**

Froebel will be remembered in the world of education for founding the Kindergarten.

"Kindergarten" is a German word which means "the childen's garden." He assigned the name Kindergarten to the children's school. The name 'Kindergarten' came to Froebel one spring day in 1840 as he was proceeding with some friends from Keilhan to Blankenburg when from a hill he saw the valley of the Rhine, a tributary of the Saale, stretching out before him like a great garden and exclaimed, "Eureka! I have found it," the schol Kindergarten, a garden in which young children may grow as naturally as a plant under the care of an expert gardener.

It was a very fortunate choice. The name has had a widespread acceptance and has been incorporated into many languages as the title of Froebel's school and spirit.

Because of his theory of harmonious development Froebel attached great importance to the earliest years of the child's life. He draws an analogy between the child and the plant. Leaves and branches spring out of the tree according to the principle hidden in the seed. Similarly, the child develops spontaneously by virtue of the tendencies and impulses he is born with. Froebel found his idea of Kindergarten —garden of children—from this resemblance between the growing child and the growing plant.

The fundamental thought of the Kindergarten is to help the child to express himself and thus produce development. For this, start has to be made with his innate interest and tendency. The work of the school is based upon self-activity and ends in the expression or use of the ideas or knowledge acquired during the course of the activity. The main object is not the acquisition of knowledge but growth or development. Khowledge is only a means to an end. It is subordinate and a by-product, although very essential for the growth.

The teacher's part in the Kindergarten is to organise and guide the free and continuous development of the pupil through play. For this, it is necessary that the teacher should know the native interests and tendencies of children. Only then can he guide them well.

Froebel's Kindergarten is a miniature state for children. Here the young citizens learn to move freely but with consideration for each other. It is a school without books. There are no set intellectual tasks. It is permeated with play, freedom and joy. Self-activity, creativeness and social co-operation find complete application and concrete expression.

Play is the most important 'way' followed in the Kindergarten. Play is organised and controlled on definite materials in order to harmonise the feelings and the activities of the children while engaged in the activities. "Without rational conscious guidance," Froebel is reported to have said, "childish activity degenerates into aimless play instead of preparing for those tasks of life for which it is destined." Hence the importance of properly utilizing and controlling this basic urge in children. The teacher can help the children realise their own impulses by encouraging them to play; she may encourage those elements in children's play which are good and useful. She should discourage those elements in play which are injurious or improper and should see that play develops desirable habits of action, traits, feeling and thought in the children. Let play enable children to achieve confidence and balance in an orderly fashion.

Froebel's Kindergarten was a miniature society. It is to be a unified organism in which the units of developing individuality will perfect themselves through participation in the life of the world. School has a social significance as the individuality emerges through the experience of group relationships and activities. The school is to enable the child to discover his own individuality, work out his own personality and develop his power of initiative. These, the child will achieve, through co-operation with others. All children share interest, responsibility and rewards. Mutual help is the motto in the Kindergarten of Froebel.

In achieving all these aims, Froebel assigned a great task to the teacher. He has to control the growth of the child into a man, just as the gardener controls the growth of a plant to its full flowering and fruition. The teacher is to see that the child develops according to his original and logical course of development.

In short, we can say that the aim of the Kindergarten was the fullest individual development; the method followed was the method of motor expression and self-activity and means were of social co-operation.

### Merits of the Method and its Contribution

1. *Froebel gave the idea of children's garden.* Froebel was the first person in the history of education to give the idea of children's garden. He founded a school which is to help each child to optimum development, to provide an environment in which each child can realize to the fullest extent his potentialities at his present stage of

growth and lay a foundation for the healthy unfolding of his personality. Kindergarten is a place where children's growth is nurtured but not forced, guided but not moulded. Education, said Froebel, should not be prescriptive, categorical, interfering, but should provide for free self-activity and self-determination on the part of man.

Although Froebel himself said that centuries would pass before his views of the human creature, as manifested in the child, and of the educational treatment it required "would be universally received" yet it can be seen that Froebelian Kindergarten soon caught the eye of the world and now the cult of the Kindergarten has come to stay.

2. *Children were given loving attention by Froebel.* Froebel's recognition of the significance of the native capacities of children, his loving attention to them, and his influence in inducing others to study them, represent perhaps the most effective single force in modern educational theory in effective widespread acknowledgement of the idea of 'growth'. He recognised the importance of the native capacities of children. Children, he believes, were not only receptive of knowledge, but were incessantly active in expression. In Froebel's idea, "come, let us live with our children and for them," is summed up his love for the children.

3. *The natural course of evolution of the child's activities should be the main guide in education of the child.*

4. *Froebelian theory is applicable to children and youth of all ages. Froebel wished making education joyful and interesting.* Froebel's recognition of the educational value of play, self-activity, creative work, social participation and learning by doing are psychologically, socially and practically sound. These have been embodied in educational practices from the primary stage to university.

**Limitations**

1. *Inconsistency and incoherence mark the ideologies forwarded by Froebel.* It is by gradual differentiation and modification of structure that development proceeds. Its continuing will be broken by the law of opposites which Froebel speaks of. The organic development does not take place by alteration from one extreme to another.

2. *Philosophy on which the method is based is complicated.* The excessive symbolism has made the method difficult to understand. Not only does Froebel in his gifts personify playthings and assume that children will be able to appreciate the symbolism involved, but he also believes that the quasi-philosophic conceptions which underlie the games will impress themselves on the child's mind and determine his attitude to life. This is rather expecting too much from the child.

3. *Real development is not only determined by the inner law of the being as stated by Froebel but also depends to a great extent upon the environment and the adjustment of the child to the environment.* It

cannot be presumed that knowledge and experiences can be gained only through development from within. As a matter of fact "Internal development is stimulated by the external and modified by it; and the process of making the internal external and the external internal are not, as assumed by Froebel, successive but contemporaneous." The individual is partly determined from without, else why a Kindergarten?

4. *Froebel gives undue importance to his principle of organic unity. He tries to see it even where it cannot be detected.*

5. *Verses are not well arranged, pictures are rough and poorly drawn. The gifts are of a formal nature and their presentation is arbitrary.*

6. *Froebel's excessive emphasis on play in education cannot be acceptable because it detracts the child from serious learning.*

7. *Froebel over-emphasised form and mathematical knowledge.*

8. *Many critics are of the opinion that Froebel's law of evolution does not explain definitely how to proceed in the development of child life.*

9. *Froebel's symbolism is simply confusing. His symbols do not give us clear cut notions of things they stand for.*

10. *No attention has been paid to correlation.* Modern educational thought is unanimous on this point that subjects must be taught in a correlated form. But there is no correlation of subjects in Froebel's Kindergarten. Nature study is taught in isolation by means of object lessons. No reciprocal relationship is established among subjects like Nature study, manual work, art and craft, hygiene, reading and writing. He dilates quite a lot on the law of unity but in practice it is totally ignored.

11. *Social training imparted to the pupils in the Kindergarten is of a specific nature and is also given under specific situations.* That training may be of no use in social life outside where the atmosphere may be entirely different from the school atmosphere.

12. *Froebel lays emphasis on individual children as members of a group—very little mention is made of the group as made up of individuals.* Modern psychologists firmly believe that individuals differ from one another. Individual attention must be given so that education is matched according to the needs of individual children. Enough scope is not provided for the study of the individual child in Froebel's Kindergarten.

13. *Many of the occupations and gifts were appropriate only to his age and to the people with whom he was familiar.* To keep his principles effective, some modifications may be necessary in the present and future.

**Conclusion**

In spite of the criticisms, no educational theory has been more followed in actual practice than that of Froebelian Kindergarten. As a matter of fact "all the best tendencies of modern thought in education...... culminate in what was said and done by Froebel. He has shown the right road for further advance. Many tendencies in the curricula and methods of the school today can be traced back to him. His educational principles have been accepted as basic for education at all levels. Modern education will ever remain indebted to Froebel. It was he who drew the attention of the society towards the education of very young children.

The underlying principles of Froebel's philosophy may not be intelligible at times, but his doctrines are of practical value. Just as Jesuits and Comenius introduced a systematic methodology of instruction, similarly Froebel gave a methodology of play to be applied in educational procedure.

The doctrine of play, not invented but most fully developed by Froebel has had the greatest influence upon educational practice and forms the centre of the new education for it is implied in the project and in the whole range of experimental and creative activities which the modern school uses.

Ever since the time of Plato men have said that education should begin with the beginning of life and continue to the end of it. Froebel at least made a beginning in this direction.

Can we think of a better principle to follow than to "Educate every child as if he were your own"?—the principle was given by Froebel.

Kindergarten has been declared to be, "by far the most original, attractive and philosophical form of infant development, the world has yet seen." No wonder, it has spread to all progressive lands.

## Summary

1. The Kindergarten method is coloured by the idealistic philosophy of Froebel. The principle of unity, the principle of development, the principle of self-activity and that individuality can develop best through social institutions are very important principles upon which the method is based.
2. Froebel's educational principles are:
   - (i) The child must be educated in accordance with the laws of his development.
   - (ii) Education should enable the child to realise unity in diversity.

- (iii) Creative self-activity through social participation occupies a very important place in the method.
- (iv) Froebel saw the problems of education against a sociological background.
- (v) Froebel developed both the theory and practice of play and education.
- (vi) Froebel erased the distinction between play and work.
- (vii) Froebel's concept of the individual is genetic.
- (viii) Froebel recognised the unitary character of human nature and its growth.
- (ix) Froebel emphasised that instruction should not be arbitrary.
- (x) Froebel advocated the inclusion of manual instruction in the school curriculum.
- (xi) Froebel gives industry and religion their proper places.
- (xii) Froebel interpreted education in historical and evolutionary terms.
- (xiii) Froebel considered childhood as the most important stage of the total development of man and humanity.

3. Education which is imparted centres round song, gestures and games. Gifts and occupations are the medium of education. In the curriculum, manual work, nature-study, art and objects of art, mathematics, languages are considered important.
4. Method has so many advantages:
   - (i) Froebel gave the idea of children's garden.
   - (ii) Children were given loving attention.
   - (iii) The natural course of the evolution of the child's activities should be the main guide in education of the child.
   - (iv) Froebelian theory is applicable to children and youth of all ages.
   - (v) Froebel's recognition of the educational value of play, self-activity, creative work, social participation and learning by doing are psychologically, socially and practically sound.
5. There are some limitations of the method:
   - (i) Inconsistency and incoherence mark the ideologies forwarded by Froebel.
   - (ii) Philosophy is complicated.
   - (iii) Environment is not given the importance it deserves in the development of the child.

(iv) Froebel gives undue importance to the principle of organic unity.

(v) Verses are not well-arranged, pictures are rough and poorly drawn; the gifts are of a formal nature and their presentation arbitrary.

(vi) Excessive emphasis on play cannot be acceptable.

(vii) There is over-emphasis on form and mathematical knowledge.

(viii) Froebel's Law of evolution does not explain definitely how to proceed in the development of child life.

(ix) Symbolism is confusing.

(x) No attention has been paid to correlation.

(xi) Social training is of specific nature.

(xii) There is emphasis on individual children—very little mention is made of the group as made up of individuals.

(xiii) Occupations and gifts were appropriate only to his age and to the people with whom he was familiar.

Kindergarten method is one of the most popular methods. Kindergarten schools are found in all progressive countries.

### Questions and Problems

1. What are the differences between using activities as a means of recreation, of training for a vocation, and of education?
2. Why did Froebel, in developing the Kindergarten, collect songs, games and other materials that were used by the common people instead of inventing appropriate activities?
3. According to Froebel we learn in doing and by doing. How far do you agree with this view?
4. Are some kinds of play more educative that others, and which kinds?
5. "Whatever you want a child to do heartily must be contrived and conducted as play." (Caldwell Cook). What are the different forms of play you will suggest for the different stages of the life of an individual?
6. Explain the chief contributions of Froebel's philosophy as applied in the work of a modern Kindergarten.
7. "Froebel's system of education, whereas it is clear and palpable to the yougest child, also contains in itself all philosophy." Discuss.

8. What, according to Froebel, is the aim of education? What curriculum does he recommend to achieve that aim?
9. "Froebel considered education to be a process of creative self-development." Explain the statement. What contribution has this emphasis made to modern educational methods?
10. Describe the gifts and occupations for children recommended by Froebel.
11. "Creative self-activity through social participation is the basis of Froebel's psychology." Explain and elucidate.
12. "The dominant idea in the Kindergarten is natural but directed self-activity, focused upon educational, social and moral ends." Discuss.
13. Why did Froebel devise gifts?
14. What is the importance of 'occupations' in the Kindergarten system?
15. Examine critically Froebel's Kindargarten. Suggest measures to adopt this method for use in our schools.

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## 16

# THE MONTESSORI METHOD

*Underlying principles of the method—The Montessori Method—Procedure—Merits—Limitations—Kindergarten versus the Montessori method—Summary—Questions and Problems—Bibliography.*

One of the world's great educators, Maria Montessori, gave a method of teaching children, popularly known after her name.

**Underlying principles of the method**

1. *Education as Development:* Montessori believes that education is to be a development. She says, "the child is a body which grows and a soul which develops .. we must neither mar nor stifle the mysterious form which lies within these two forms of growth, but await for the manifestation which we know will succeed one another." She lays stress on the complete unfolding of the child's individuality. Teacher is supposed to direct the latent powers of the child to unfold themselves for natural and spontaneous growth.

2. *Perfect freedom:* The Montessori method implies the perfect freedom of the child, the freedom which consists in absolute obedience to the laws of development of his own nature. Montessori admonished her teachers, "Then gave them freedom to choose their activity and indulge in it as long as they like." "Self-reliance and self-discipline" she wrote "are outward signs of healthy inward functioning."

3. *Individuality:* Montessori writes, "Now, child life is not an abstraction, it is the life of the individual children. There exists only one biological manifestation: the living individual; and toward single individuals one by one observed, education must direct itself." Left free to do so, the child would make its own choice, handle its material in its own way, work at its own pace, correct itself, when the exercise goes wrong, exert itself again if necessary, and feel the joy of its successful experience. Hence the importance of liberty for the development of individuality. Montessori emphasised that the child's individuality is to be developed to the maximum. She does not advocate use of external stimuli—to accelerate learning. She believed, it is not fear of punishment or hope of reward that

motivates a child, but the sheer satisfaction of the work itself. So the children are to be encouraged to develop what is in them—and the greatest reward is going to the next stage.

4. *Sense training:* Montessori asserts that senses are the gateways to knowledge. So she wants to impart education through the senses She devised learning aids to give the child the feel of a subject through direct experience with tangible objects. Using identical pieces of wood in different colours the child learns to grade colours from the lightest to darkest. Sorting out bells which look exactly alike but produce different tones, he discovers—musical notes and relates them to a scale. Similarly he gains the sense of weight, temperature, through specially designed didactic apparatus. She gives special importance to the sense of touch. It is for this reason that her method is sometimes called as education by touch. She herself says, "The didactic material which, used with deficients, makes education possible, used with normal children, provokes auto-education."

In sensory training, Montessori, like Rousseau, believes in isolating the senses whenever that is possible. For developing tactual sense, the pupils of the Montessori school are blindfolded; for developing auditory sense, exercises are given in an environment not only of silence, but even of darkness; for perception of size, a series of wooden cylinders varying in height only, in diameter only or in both dimensions at once, are employed, likewise blocks varying regularly in size, and rods of regularly graded lengths; for perception of form, geometric insets in metal, in wood or the shapes of the insets drawn on paper; for discrimination in weight, tablets of wood similar in size but differing in weight; for touch, a highly polished surface and a sandpaper surface; for sense of temperature, small metal bowls with caps; for auditory acuity, cylindrical sound boxes containing different substances; for the colour sense, graded series of coloured wools are used.

5. *Self-education or auto-education*: Montessori method is unique in the way it insists on self-education or auto-education. Montessori says, "the greatest triumph of our educational method should always be this: to bring about the spontaneous progress of the child; spontaneous psychic development of the psychic potentiality of the child." "In order to ensure psychical phenomena of growth" says Montessori, "We must prepare the 'environment' in a definite manner and offer the child the external means directly necessary for him. This is the *positive* fact which my experiment has rendered concrete... The establishment of such a method should open up a new path to all education. It is, therefore, necessary that the environment should contain the means of auto-education." In other words, the child should be educated in a special environment with external means of self-education. Montessori devised self-corrective apparatus for auto-education. The Montessorian directress is an observer of individuals

who select their own activities and decide for themselves when to change.

6. *Social development:* The Montessori Method does not ignore the social factor in education. The "Children's Houses" are communities which require their members to conform to standards of cleanliness and behaviour necessary for the comfort and welfare of the group. Pupils are responsible for the tidiness of the classroom and for helping with the laying of tables for meals. There is no interference with natural tendencies to group together in some activities nor any prohibition of the guidance of one child by another. Montessori indicates that she is not unmindful of the child's social needs and of the task of improving society, when she writes, "The discipline to which the child habituates himself here is, in its character, not limited to the social environment but extends to society."

7. *Motor education:* Montessori has attached a great importance to the muscular activity as a part of the early education of children. She believes that motor efficiency aids and facilitates other activities such as writing, walking and running and thus help the child to depend upon himself. Hence Montessori aims at motor efficiency (though purely physiological in character) along with sensory training.

### The Montessori Method

As far as the practice of this method is concerned, three types of exercises are taken up:

(1) Exercises of practical life;
(2) Exercises in sensory training;
(3) Didactic exercises.

(1) *Exercises of practical life:* The Children's House, as Montessori chooses to call her school, is specially equipped to meet the needs of young children. The children are given exercises for practical life which they really enjoy. They sweep their rooms, dust and clean the furniture and arrange it as they like. They learn to blow their nose quietly, wash their hands, tie shoe laces, polish shoes, fasten belt buckles, and pour water or milk without spilling it. Exercises are also arranged to train the child in the movements necessary in dressing and undressing. The apparatus for these exercises consists of wooden frames, mounted with two pieces of cloth or leather, which are fastened by means of buttons and button holes, hooks and eyes, eyelets and lacings or automatic fasteners. After some practice in fastening and unfastening the pieces of cloth with the various types of fasteners, the child finds that he has acquired a dexterity which enables him to dress and undress himself; and not content with the satisfaction derived from such independence, his consciousness of the possession of a new skill excites in him a desire to assist in dressing the whole family.

All the furniture in the Children's House, tables, chairs etc., are of such a size and so constructed that the pupils can handle them easily; they learn to move them deftly and without noise, and are thus afforded a training in motor adjustment. In addition, long low cupboards are provided. In these the children may place the didactic material or what they like and may take it out as they please. There are also low blackboards in the walls on which the children may draw anything they like according to their own interests. They may paste pictures, cuttings or any other material which is of interest to them. There are small pieces of carpets in different colours for the children to sit on and play. Small musical instruments are also there. The "House" is decorated with various types of flowers and pictures.

The lunch-room is well-equipped. There are low tables, chairs and drawers containing cutlery, tablecloths and napkins. The plates, spoons, tumblers etc., are very well arranged in small cupboards. The children lay their tables themselves and lunch together. Their handling of the plates, glasses and cutlery pieces is marvellous.

There is also the Paedometer i.e. instrument to measure height. There is the weighing machine to measure the weight. Children are given exercises to measure their heights and weights themselves and to keep a record of their readings.

Montessori also provides formal gymnastic exercises to develop in the child co-ordinated movements. She disapproves of the child practising the ordinary gymnastic exercises arranged for the adult. "We are wrong," she maintains, "if we consider little children from their physical point of view as little men. They have, instead, characteristics and proportions that are entirely special to their age." Consequently, Montessori evolved new set of exercises by observing the spontaneous movements of the child. One piece of apparatus, namely, the little round stair, may be taken as an instance. A wooden spiral stairway enclosed on one side by a balustrade on which children can rest their hands, the other side being left open, enables the children to habituate themselves to ascending and descending stairs without holding on, and teaches to move up and down with movements that are poised and self-controlled. The steps are very low and shallow, and children can thereby learn movements which they cannot execute properly in climbing ordinary stairways in their homes, in which the proportions are suited to adults. These exercises give gracefulness of carriage to children.

Practice in handwork is provided through exercises in clay modelling, making files and bricks with the help of simple moulds. Similarly children are also taught to walk in straight lines and balance themselves properly.

(2) *Exercises in Sensory Training*: Exercises in sensory training are imparted through the finely graded didactic apparatus. Varied

types of apparatus is provided for perception of size, form, weight, touch, hearing and colour etc.

(*i*) *For perception of size*: there are series of wooden cylinders varying in height, in diameter or in both dimensions at once, blocks varying regularly in size and rods of regularly graded lengths.

(*ii*) *For perception of form*: there are geometrical insets in metal, wood (prism, pyramid, sphere, cylinder, cone etc.) a chest of drawers containing plane insets, a series of cards on which are pasted geometrical forms in paper, etc.

(*iii*) *For perception of colour*: there are pink cubes, brown prisms, green and alternately red and blue rods and coloured tablets, and graded series of coloured words.

(*iv*) *For discrimination in weight*: there are tablets of wood similar in size but differing in weight.

(*v*) *For discrimination in touch*: there are rectangular tables with rough and smooth surfaces, a highly polished surface and a sandpaper surface, etc.

(*vi*) *For discrimination in sounds*: there are a collection of closed cylindrical sound boxes containing different substances, wooden boards on which are painted ten lines used in music, a double series of music bells, and small discs for the notes, and so on.

(*vii*) *For sense of temperature*. There are small metal bowls with caps.

**Procedure**

The procedure adopted in the method is of Seguin i.e. the lesson is divided into three stages or steps:

(i) The *association* of the sensory percept with the name. For example, the child is shown two colours, red and blue. When the red is presented, the teacher says simply, 'this is red'; when the blue 'this is blue'.

(ii) The second step involves *recognition* of the object when the name is given. Thus the teacher says to the child, 'Give me the red,' 'Give me the blue'.

(iii) The third step involves *recalling* the name corresponding with the object. Thus the child is asked the object being shown, "what is this?" and he responds, "Red" or "Blue." As stated earlier, Montessori lays stress on developing the senses in isolation.

(3) *Didactic apparatus for teaching of language and arithmetic:* Didactic exercises are also used for teaching 3 R's. Montessori believed that muscular skill in children develops quite easily. So she advocated

that teaching of writing should precede the teaching of reading. She opined that reading involves superior intellectual development and should be deferred till skill in writing is acquired.

Writing, according to the Montessori view, is not a mere copying of headlines, but significant writing, the writing of words which express ideas. In writing are involved two diverse types of movement, the movement by which the forms of letters are reproduced and that by which the instrument of writing is manipulated; in addition to these movements necessity for the writing of words to dictation, the phonetic analysis of spoken words into their elementary sounds. Preparatory exercises for each of these factors are devised and practised. To teach alphabets, letters are cut in sandpaper and pasted on cardboard. Children pass their fingers over them. The roughness of the sandpaper provides a control for the accuracy of the movements. As soon as children acquire facility in tracing of the forms of letters, they take great pleasure in repeating the movement with closed-eyes. Thus the forms of the letter are not learned and impressed on the minds of the pupils by visual analysis and retained by visual imagery, but by tactual and motor experiences and grapho-motor imagery.

The phonetic sounds of the letters are taught at the same time as the tracing of the forms in the three stages—*association, recognition and recall*. The audio-motor imagery helps to reinforce the grapho-motor and to facilitate the retention of the forms of the letters. The children are also given practice in analysing the spoken word into its sounds and in reconstructing the word with sandpaper letters.

The handling of the pen in the right manner is taught through exercises in which the child traces contours of geometrical shapes with crayons. When the child has connected well the visual, the muscular, the tactual and the auditory sensation, he spontaneously starts writing. Montessori reports that the average time that elapsed between the first trial of the preparatory exercises and the first written word for children of four years, is from a month to a month and a half. With children of five years, the period is much shorter, being about a month. The pupils are generally expert after three months.

### *Teaching of reading*

Reading is the reproduction of the sounds from the symbols and the fusion of these sounds into words. Just as, in her system writing is something more than mere copying pot-hooks and head-lines, so reading is not a mere 'barking at print' but the recognition of the meanings represented by the visual characters. 'What I understand by reading', Montessori says 'is the interpretation of an idea from the written signs'; and again; 'until the child reads a transmission of ideas from the written words he does not read.'

The didactic material for the lessons in reading consists of slips of paper or of cards upon which are written words and phrases in clear large script.

For teaching reading, the child is given a card on which a name is written in script. He translates in writing slowly into sounds and if the interpretation is exact, the directness restricts herself to saying, 'Faster'. The child reads more quickly the second time, but still, often, without understanding. The teacher repeats 'Faster, faster'. The child reads 'faster' each time, repeating the same accumulation of sounds; finally the word emerges in consciousness. When the child has pronounced the word, he places the card under the object whose name it bears, and the exercise is finished.

Sentences describing actions or expressing commands are likewise written on slips of paper, and the children select these and carry out the requests contained in these. Montessori is not in favour of reading the sentences aloud. 'Reading aloud', according to the Montessori analysis, 'implies the exercise of two mechanical forms of language—articulate and graphic—and is a complex task. The child, therefore, who begins to read by interpreting thought should read mentally.

The period intervening between the commencement of the writing process and the appearance of the ability to read is about a fortnight i.e. the average time required for learning to read.

*Teaching of numbers*

For teaching numbers and four simple rules 'a long stair' is used. It is a set of ten rods varying in length from 1 to 10 decimetres, the intermediate rods diminishing in length by decimetres. The rods are divided into decimetre parts, the spaces on the rods being painted alternately red and blue. The child first learns to arrange the rods in order of size and then counts the red and blue divisions and also names the rod as one, two, three and so on. The signs for the numbers are cut in sandpaper and the usual procedures of three steps, association, recognition and recall, is gone through. The graphic signs are then related to the quantity represented.

Addition is taught by suggesting to the child to put the shorter rods together in such a way as to form tens; 1 is added to 9, 2 to 8 and so on. Subtraction, multiplication and division can also be introduced by means of the same didactic material, and later on the child is allowed to express graphically his operations with the rods.

**Merits**

(1) *A scientific concept of educational procedures:* One of the strong points of this method is that it has brought a scientific concept of educational procedures. Montessori tried educational facts in the light of experience and experiment. She was a scientific observer of child development and devised a method of education based on scientific lines.

(2) *The note of individualism in education:* Monteasori re-emphasised the note of individualism in education. Her method is a reaction to collective teaching. Thus her method is in tune with the modern psychological view.

(3) *Emphasis on sensory training:* Madame Montessori greatly emphasised sensory training in her scheme of education. No one can deny that senses are the gateways of knowledge.

(4) *Emphasis on complete freedom:* Montessori advocates complete freedom for children. Children develop the qualities of self-reliance and self-discipline. Sigmund Freud once remarked admiringly that children trained in the Montessori spirit were bound to make poor customers for psychoanalysis later in life.

(5) *Method of teaching, reading and writing unique*: Montessori has emphasised that writing should precede reading. She has also laid stress on motor efficiency. The fact that intellect will follow action cannot be disputed.

(6) *Practical exercises quite useful to the pupils:* The idea of providing exercises for practical life is also quite significant. The children learn to do the little jobs themselves. They also learn to live in community.

(7) *Teacher—directress of learning:* Montessori stresses that the teacher's background function is not mere passivity but rather "anxious scientific curiosity—the teacher must understand and *feel* her position of *observer*". The value of such observation by the teacher is acknowledged today, although opinion may vary as to the function of non-intervention, non-co-operation and non-leadership.

(8) *Regulated environment to facilitate auto-education:* The provisions of regulated environment to facilitate auto-education is also unique. Montessori takes great care in the careful organisation of the child's environment, the regulation of his liberty and the provision of special material for his use, designed to give him practice in activities which might otherwise be encountered in the environment only irregularly.

**Limitations**

(1) *The theory of formal training exploded:* Montessori's idea of sense training is based on the already exploded theory of formal training of the senses. It is rather doubtful whether results of sensory training in specific spheres may be transferred to other sensory spheres.

(2) *Senses cannot be trained in isolation:* Modern psychology has given us the greatest of all truths that an individual reacts as a whole. It is not possible to educate the individual in fragments. Senses cannot be trained in isolation. Moreover, mere sense training is not sufficient

for child development. The child is attracted not only by sensory stimuli, he is equally interested in exercising his imagination to hear stories, to ask questions etc. It is true that lack of certain forms of sensory training may obstruct progress in specific occupations but sensory deficiency may not affect high intellectual attainments. Again, some sensory training carries no social significance at all.

(3) *The method overlooks the complete personality of the child.* Montessori's idea of individuality is more or less biological. The records of height, weight, skull and limbs of each individual child constitute individuality according to Montessori. The psychological aspects of temperament and character are not taken into consideration in studying it. And yet all these cannot be ignored in proper assessment of individuality.

(4) *The didactic apparatus inpedes proper expression.* Though the didactic apparatus provides good exercises for child, yet it is very much limited in its scope. Most of the times, the exercises with the apparatus, are far removed from social interest and become mechanical.

Attractive sense toys should be devised largely on the principles of the original apparatus to suit the new needs.

(5) *Neglect of training of Imagination.* All educators agree on the point that imagination of children is to be used and developed but Montessori aims to achieve this through realities because "the imagination of modern men is based upon the positive researches of science." But it will have to be admitted that as play is to work, so imagination is to reality. Stories and fairy tales are indispensable for developing imagination. It will not be advisable to ignore the training of imagination altogether.

(6) *The idea of auto-education carried too far.* The idea of self-education or auto-education is good in general but its specific working with the help of the didactic apparatus is not free from defects. Self-education is just reduced to a mechanical manipulation of the didactic apparatus. Life is full of situations which can give the facility of self-education that dependence on formal didactic apparatus. is needless.

(7) *Too costly Apparatus.* As the Montessori directress is an observer of individuals who select their own activities and decide for themselves when to change, the Montessori school needs much more apparatus than an ordinary school. The apparatus is also very costly. Thus an ordinary school cannot afford to meet expenses. So far as India is concerned, financial limitations do stand in the way of establishing such schools on a large scale.

(8) *Teacher trained on Montessori lines not available:* The greatest difficulty in wide use of this method is the paucity of teachers trained on Montessori lines. To be a 'significant observer, and 'to help when help is required' is no easy task. Thorough training in the procedure

is required on the part of the teacher. Such teachers with efficient training are difficult to get.

**Kindergarten versus the Montessori method**

*Points of resemblance*

1. Both the Kindergarten and the montessori method are methods of education of young children between the ages of three and seven years.
2. In both the methods, the child is the centre of the educative process.
3. In both the methods, great emphasis is laid on the development of the inner nature of the child—that the inner must be made the outer.
4. In both the methods, importance of sense training in the early education of the child is greatly stressed.
5. In both the methods, special apparatus has been recommended and detailed instructions given for its use.
6. In a Kindergarten as well as Children's House, a beautiful environment is created.
7. Both the methods have got universal recognition and worldwide fame. The attractions of present day progressive and happy schools are due to the common sense of Montessori and wisdom of Froebel.

*Points of contrast*

1. Froebel's Kindergarten is based on his *idealistic philosophy*. Montessori method has a *scientific foundation*. Whereas it might be possible to follow Kindergarten method while not attaching too much importance to its metaphysical interpretation, Montessori method loses its significance without its scientific foundation.
2. Froebel centres his attention mainly on *the endowment and development of the child. Montessori was an environmentalist*. In *The Secret of Childhood* she writes, 'Our own method of education is characterised by the central importance that we attribute to the question of environment; it is well known how our pedagogy considers the environment important to make it the central point of the whole system.'
3. In the Kindergarten method, children carry on group activities, in Montessori method the individual child is to do his own task in his own way at his own speed. While in the former, there is emphasis on too much socialisation,

in the latter, there is too much emphasis on individualism. Some sort of social training is emphasised in both the methods, though methods used are different. Kindergarten system imparts social training through group games and dramatic activities. In Montessori method, activities like laying the table, serving the dinner, cleaning the room and dusting the furniture etc., help in imparting this training.

4. In Kindergarten method, physical training is imparted through group work. In Montessori method, it is done through specially designed apparatus.
5. In Kindergarten method, classroom teaching is done according to time table. In Montessori method, there is no specific classroom teaching; there is no restriction of any time table; children move from room to room and place their furniture in any way they like.
6. In Kindergarten method, there is a specially designed series of twenty gifts for imparting sense training to children. Children play with them and thus gain ideas of size and colour. In Montessori method we have three different kinds of apparatus in very large quantity—sensory apparatus to give sense-training to the sense of touch, sight and hearing; didactic apparatus to teach reading, writing and number, and apparatus for giving motor training relating to the activities of daily life. All the apparatus is used in a specific way and is self-corrective. Thus, apparatus in Montessori method, is entirely different from Froebel's Gifts.
7. In Kindergarten method, great importance is attached to play and play activities. All the lessons are accompanied by songs, movements and gestures. Play and play activities are not given much importance in the Montessori method as most of the instruction is given through the self-corrective apparatus.
8. In a Kindergarten, great importance is attached to manual activities like gardening, clay modelling, paper cutting. In the House of Childhood, great prominence is given to the daily routine of life like dressing, undressing, laying and dusting of furniture. These activities are imparted as training for citizenship and to be self-sufficient and independent.
9. The Kindergarten teacher is supposed to interfere sufficiently to guide his pupils, while in Montessori school the teacher remains in the background and free discipline is inculcated.
10. The teacher in a Kindergarten is a teller of stories as well as a group leader, and organizer of short time activities.

The Montessori directress is an observer of individuals who select their own activities and decide for themselves when to change. Self-corrective appraratus helps pupils to achieve the aim.

11. The teaching of reading, writing and arithmetic—the so-called 3 R's—finds a very important place in the Montessori method and a datailed system of teaching these has been devised. The Kindergarten, however, ignores it.
12. The principles of Kindergarten may be applied and practised in any school for little children without necessarily making use of his gifts. The method is very popular. The Montessori method requires an elaborate and costly apparatus and it cannot proceed without it.
13. The Montessori school needs much more apparatus than the Froebelian. For instance, the latter gives physical training through group work: the former through specially designed apparatus such as the climbing frame now found in many nursery schools.

### Summary

1. The following are the underlying principles of Montessori method:
   - (i) Education as development. Teacher directs the latent powers of the child to unfold themselves for natural and spontaneous growth.
   - (ii) Montessori advocates complete freedom to the child.
   - (iii) Individuality is developed to the maximum.
   - (iv) Montessori emphasises sensory training.
   - (v) Montessori insists on self-education.
   - (vi) Montessori takes care of social development.
   - (vii) Montessori attaches great importance to the muscular activity.
2. Education is imparted through three types of exercises:
   - (1) Exercises of practical life.
   - (2) Exercises in sensory training.
   - (3) Didactic exercises. The procedure adopted has three steps—association, recognition, recall.
3. The method has many strong points:
   - (1) It gives a scientific concept of educational procedures.
   - (2) The method is a reaction against collective teaching.

(3) The method emphasises sensory training.
(4) The method emphasises complete freedom.
(5) Method of teaching and writing is unique.
(6) Practical exercises are quite useful.
(7) Teacher is styled as directress of learning.
(8) Regulated environment is provided to facilitate auto-education.

4. There are some limitations to the method also:
   (1) The theory of formal training has been proved baseless.
   (2) Senses cannot be trained in isolation.
   (3) The method does not take into consideration the complete personality of the child.
   (4) The didactic apparatus stands in the way of proper expression.
   (5) Training of imagination is neglected.
   (6) The idea of auto-education has been carried too far.
   (7) Apparatus is expensive.
   (8) Teachers trained on Montessori lines are not available.

5. The Kindergarten and Montessori methods of teaching young children have many points of resemblance and contrast. Both the methods are good contributions to the field of methodology of education.

## Questions and Problems

1. "The modern progressive movement with its emphasis upon freedom in the school-room, the natural development of children and self-instructional materials, is indebted to the work of Montessori." In the light of this remark discuss Montessori method.

2. "Montessori deserves the credit of sounding the death-knell of class teaching." Discuss.

3. "The permanent elements of her method are more likely to be the practical activities and the exercises subsidiary to the didactic processes. But the significant feature of the system is the individualisation of instruction." In the light of this remark, discuss Montessori method.

4. Explain why Dr Montessori puts the child in the forefront and insists upon the teacher remaining in the background. Describe other modern educational methods, which give an equally important place to the child.

5. What is the importance of the didactic apparatus in the Montessori system?
6. Why do fairy tales not find a place in the Montessori system?
7. Explain the main principles underlying the Montessori method. Why does she teach "writing" before "reading?"
8. "The greatest attribute of a teacher is that he trains his pupils to do without him." Discuss this statement with particular reference to the Montessori method.

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# 17

# THE PROJECT METHOD

*Implications of pragmatism for education—The Project Method not new—What is an educational project—Characteristics of the method—Types of projects—Essentials of a good project—Organising a project—Examples of projects—Merits of the method—Limitations—The teacher's role—Conclusion—Project Method and Basic Education compared—Summary—Questions and Problems—Bibliography.*

The project method is a significant landmark in the history of the methodology of education. It is directly in line with the current progress and fits in very comfortably with the other developments.

This method owes its origin to the American philosophers belonging to the pragmatic school of philosophy. Dewey—the American philosopher, psychologist and practical teacher—gave *Pragmatism a practical, experimental, instrumental and utilitarian bias*. The Project Method is a direct outcome of his philosophy. It is also a worthy expression of the practical genius of the American people—we must attribute to it something of the 'Life is real, life is earnest' philosophy of their best known poet. In essence, however, it was methodology related to Dewey school of thought.

**Implications of pragmatism for education**

In spirit, pragmatism is naturalistic; in method, scientific and practical; in purpose, social and human. As such it has ample implications for education.

(1) Pragmatism protests emphatically against the notion that the child should sit deferentially at the feet of any teacher, however inspiring, learning in humble and relatively passive fasion what is prescribed from above. It does not want him to acquire merely the results of other people's thinking; it rather wants him to forge for himself the knowledge and skill necessary to deal effectively with situations of real life. Education is not so much teaching the child things he ought to know as encouraging him to learn for himself through experimental, creative activity. True knowledge is not the acquiring of a dead culture, particularly from books, it is rather the power to do the right thing in a given situation. *Pragmatism always tends to stress action*

*rather than reflection; it countenances no divorce between theory and practice.*

(2) The well-worn teaching maxim '*learn by doing*' may be regarded as an important corollary of pragmatism in educational method. Pragmatism constitutes a charter for the teacher who distrusts bookishness and believes that the child learns much better from his own activity than from constant instruction.

(3) Pragmatism goes much further than merely to call our attention to the importance of practical work as a means of instruction in all subjects. The most general method of educational *pragmatism is putting the child into situations with which he wants to grapple and providing him, at the same time with the means of dealing with them successfully.*

(4) *Pragmatism condemns the traditional division of the curriculum into subjects.* Instead of working at separate subjects, the pupil is encouraged to draw freely upon all knowledge that is relevant to the activity on which he happens to be engaged. Any studies he undertakes are motivated by his desire to solve his own problems and are viewed and valued from the standpoint of the utility in dealing with such problems. The pragmatism tells us that even in this sacred domain of higher learning, the problem of integration must be solved. The useless lumber of learning ought to be ruthlessly discarded, and the remainder significantly related to the life of the pupil. In America, the pragmatist practises what he preaches; having worked out integrated systems of learning in elementary schools, he has at least got the length of experimental procedures to solve the problem in secondary schools.

(5) The most characteristic and thorough going contribution made by pragmatism to educational practice is project method—that method, which puts in the foreground of the learning process, a definite practical problem to be solved. The problem comes first and the learning is incidental to its successful solution; principles, skills and methods are acquired by the pupil as he experiences the need for them. Any logical arrangement of knowledge, even if regarded as important and desirable, is a distant goal.

(6) Curriculum is not to be prefixed but set forth in the form of problems to be tackled by pupils piecemeal or collectively as their intelligence levels permit.

(7) Both teaching and learning are experimental in character and their outcome is to be tested on the pragmatic formula—whether or not a particular method or process of education facilitates more competent practice.

**The project method not new**

The Project method is not totally new. Projcet equivalents are advocated for the adolescent period by Rousseau in *Emile* (Bk-III); many of the activities prescribed by Froebel in the *Education of Man* for boyhood education are reminiscent of the project idea; and as Sir Percy Nunn points out, the use of rural projects in the education of his own children is described by William Cobbett in his *Advice to Young Men*.

Like the gifts and occupation of Froebel or the didactic apparatus of Montessori, it affords an acceptable means of postponing the provision of formal instruction until such time as the pupils are ready for it.

In the words of Robert R. Rusk, "The activities in which the boy engages have all the characteristics of projects—practical problems involving co-operative effort and affording intellectual and moral training." Froebel himself writes, "If in his former activity (in childhood) he emulated phases of domestic life, in his present activity (in boyhood) he shares the work of the house-lifting, pulling, carrying, digging, splitting." Even building a hut is instanced and this justifies the claim of an American writer that Froebel, particularly in his *Education of Man*, has given the world no mean anticipation of Dewey's own school.

### What is an educational project

An educational project has been boldly, yet aptly defined, by Stevenson as: "a problematic act carried to completion in its natural setting." Kilpatrick says, "A project is a wholehearted purposeful activity proceeding in social environment." Ballard gives another definition. He says, "A project is a bit of real life that has been imported into the school." A modified definition of a project is given by Tomas and Long. They define it as "a voluntary undertaking which involves constructive effort or thought and eventuates into subjective results." Parker says, "A project is a unit of activity in which pupils are made responsible for planning and purposing."

All these definitions have got the same main underlying ideas, (i) that school tasks are to be as real and as purposeful as the tasks of the wider life beyond the school walls; (ii) that they are to be of such a nature as to ensure that the pupil is genuinely eager to carry them out in order to achieve a desirable and clearly realized aim. To quote Dewey "Force nothing on the child......give it free movement ......let it go from one interesting object to another......we must wait for the desire of the child, for the consciousness of need." We can never tell someone to be interested and expect his automatic interest. It has long been established that participation is the quickest road to interest.

Thus a project will be a purposeful act ranging from backing of a loaf of bread to running a newspaper, done entirely by a group or by an individual. It is a learning unit of appreciable length—difficulty and value in which the pupils are really interested.

As started above, projects may be of an individual or a social character but the superior value of the latter, usually called 'socialized activities' by the American writers is generally recognised. They are of maximum value when they are activities which involve participation in social relationships, division of labour, willing acceptance of responsibility to the community; in short, when they are *group enterprises providing rich experience in co-operation.*

**Characteristics of the method.**

(1) The Project method is the embodiment of a new way of looking at the pupil and of a new way of teaching him to live. The method aims at teaching the child to get the best out of life, not in the future, not when he is grown up, but here and now. "To the traditionalist, education is preparation for life; to Dewey education is part of living and not a preparation for further living."

(2) It is an attempt to use experience—the trust and best master—and one, whose lessons are unforgettable.

(3) The Project method aims at bringing out what is in the child and at allowing him to develop himself. It gives an opportunity for self-expression; it gives an opportunity for relating the self to the community. It tries to make the school the best place the child knows.

(4) The experiments of the Project method want to reset the whole curriculum and break all barriers of subject matter. What they will frame is known as the core curriculum where the activity, that is chosen, becomes the core and all knowledge, that is acquired, becomes *incidental.*

(5) The Project method proposes not merely the abstract solving of a problem but the whole sequence of activities involved in a complete undertaking. It is just a problem. The situation has not only to be *resolved* but the *activity involved is actually carried to completion.* The idea underlying the method was that children should develop their knowledge through trying out theories in the practical solution of prolems in the course of which they would come to appreciate the principles involved. Fresh knowledge is to be acquired only as a result of the felt needs of the pupils.

(6) The project, in other words the activity or purposeful act, may be of any character-manual or motor or both. It may take the form of preparing and presenting a play or producing a class magazine or the running of a school hospital. We cannot restrict the project method to experiences of the "doing" type as it will be contrary to good pedagogy and sound psychology. "A project can be a large unit of appreciational learning or of attitude development as well as one

that increases motor skills and technical knowledge." With small children, the majority of projects will have something manual in them.

(7) The activities, when made the sole means of education, will inevitably cut across the time-table organization to which we are accustomed as well as across the ordinary classroom organization. For example, in preparing to present a play, the pupils will have their own particular jobs to do, the actors to learn and rehearse their parts, the young electricians and some painters to prepare the effects, the dress-makers to make and fit the costumes. All this takes time and, if it is attempted in a series of 'isolated lesson' priods, the co-ordination usually breaks down and the whole business hangs about such a long time that the interest flags. The result is that the time-table inevitably goes by the board if the teacher wishes to make a success of the production. Where, out-of-school projects are involved, the ordinary time-table is clearly impossible.

(8) A project is a play-activity, and, children engaged in the carrying out of a project, are undoubtedly children at play, though they may be getting through a lot of apparently hard and monotonous work. There is a marked contrast betwen the boy making bricks for the room he is building and the labourer doing exactly the same thing as his daily work. One is playing, the other is working, although, the physical effort made by each, may be exactly the same.

(9) The Project method is a complete surrender to the child's point of view. It seeks to offer the pupil complete freedom of choice of the problem to be solved, as well as the means to be employed. The fundamental principle is the educative use of occupations that are suitably doctored to meet the requirements of the ordinary school. The result is that in place of externally imposed tasks of the traditional kind, the pupil's activities are centred round a number of spontaneous projects.

(10) In the project method, the procedure of the school is liable to be determined by the technique of workshop, because it is believed that the child learns much better from his own activity than from constant instruction.

(11) An attempt is made to establish a positive relation with life. For Kilpatrick, a project may be said to represent a wholehearted purposeful activity carried on in a social milieu. His object, whether in carrying out a neighbourhood study or in scripting and staging a play, is always to bring the school, through the pupil's activities into relation with life. Dewey attempts to equate a pupil's activity in a project with that of an apprentice learning his trade. Thus he aims at an even closer relation to life.

(12) The Project method lends itself naturally to group work.

(13) It is a large unit plan of teaching. A project is a learning

unit of appreciable length, difficulty and learning value. Many large units will combine to make a project.

(14) The method seeks to have individuals see and understand life in its unity. We look for unifying elements in units of learning. Facts and experiences are integrated. Materials, tool processes and design, play parts that are interrelated rather than independent. "The method," in the words of F. Theodore Struck, "aims to bring unity out of what might otherwise be bewilderment."

## Types of projects

Projects may be of several types depending upon the nature of work undertaken. Dr Kilpatrick has suggested the following types of project:

1. *Producer type*: Projects in which pupils are asked to do something like building a house or a garden, planning to execute a model of a textile factory, model gramophone or even a toy, are called producer Type projects.

2. *Consumer type*: Projects in which pupils are getting the experience and are enjoying, they are engaged in consumer type. For instance, when the class is busy in the dramatic show of a scene or a debate, the majority of the students form the audience and they are thus busy in the consumer type of project.

3. *Problem type*: Project, in which a solution to a problem, is to be found out. Sometimes the activity may be so complex that the school is not able to reconstruct the whole scene. In this suggestion is given to the proper activity and the work of the class is confined to finding the suitable suggestions.

4. *Drill type*: No new activity is undertaken but an activity, once performed, is repeated to acquire greater skill. For instance, this type of project may be taken up to give drill in singing or swimming.

Thus, the project involves all types of activities *mental* and *manipulative*. Projects may be easy or complex depending on the activities involved and the children's development and levels of intelligence. Projects may vary from imparting of information to imparting of skill, projects may be play, story, excursion or hand projects but it is the dominant purpose or emphasis or a particular activity that will make it distinct from others.

## Essentials of a good project

(1) The project should have *evident worth* for the individual or the group that undertakes them. Other thing being equal, the project should stress present and future values and experienes that supplement and extend rather than duplicate learning acquired outside the school. The values in a project may vary in kind—some may call largely for motor skills, others for reflective thinking or for difficult analysis, still

others for developing appreciations. Generally, some elements of all these types are involved.

(2) The project must have a *bearing on a great unmber of subjects*, and the knowledge acquired through it may be applicable in a variety of ways.

(3) The project should be *timely*. There are definite relationships between the seasons of the year and current community interests and those of pupils. Pupils will be most interested in undertaking projects that relate directly to their play, avocationl and vocational interest. Certain types of projects will be stuited to particular mental and chronological age of the pupils. Then there are certain environmental and seasonal factors which must be considered. So project should be selected with due regard to time lines from several points of view.

(4) The project should be *challenging*. It has been proved by psychologists that youth wants to do a task which requires a reasonable amount of effort. Project should not be too simple and easy nor too long and difficult. If it is easy, the result will be indifference on the part of the pupils; and if it is difficult, the pupils will be discouraged. It is the job of the teacher to find out a compromise between the two extremes. Moreover, the teacher should be very careful about individual differences in interests, capacities and abilities.

(5) The project should be *feasible*. When selecting projects we should weigh all the pros and cons, the availability of the material and the information, practicability of the purpose in view, procurement of necessary tools etc., and the cost factor as well. All these are the warning signals which must be listened to and cared for before final approval is given to undertake the project.

**Organising a project**

For seeing a project through, the following suggestions are valuable:

(1) The teacher must exercise guidance in selection of the project. He should see that the projects are educative and according to the capacity and ability of the pupils and usually which arise in the classroom teaching or discussion.

(2) Wholehearted acceptance of the project by almost every pupil must be secured if the teacher wants to ensure its success.

(3) To avoid aimless rambling and hit or miss techniques, good planning should be done by the pupils beforehand. This planning can be in the form of a drawing, a list of steps to be followed, materials to be used, a picture to be prepared or other specific indications of what is to be done.

(4) The project is an activity and this activity has been taken up to fulfil certain purposes. So the project must be related to the purpose behind its initiation and refer to it frequently enough to prevent the project from becoming mere activity.

(5) In order to avoid interruptions and delays later, sufficient preparation must be done before executing the project.

(6) During the execution of the project, the teacher should carefully supervise the pupils in manipulative skills to prevent waste of materials and to guard against accidents.

(7) The relation between the chalked out plans and the developing project should be constantly checked up. As far as possible, 'at the spot' modifications and changes are not advisable but, if there are any, these should be noted and the reasons explained for future guidance.

(8) The evaluatian of the project should be done both by the pupils and the teacher. The pupils should estimate the qualities of what they have done before the teacher gives her evaluation. This evaluation is to be done in the light of plans, difficulties in the execution and achieved results. This step is very useful because, as a result of the project, the pupils can know the value of information, interest, skills and attitudes that have been modified by the project.

**Examples of projects**

1. Our Town
2. School Post office
3. School Bank
4. Our Food
5. Conducting a Class Newspaper
6. Conducting a Class Library
7. Resurgent India
8. Those Who Work for Us
9. Transport through the Ages
10. The Big World
11. Organising Dramatic Performances
12. Organising Exhibitions, etc.

**Merits of the method**

(1) *Follows the psychological laws of learning*: It provides the most natural conditions of learning, with the result the child remembers the principles learnt for a longer time. The three famous laws of learning are very well cared for in this method:

(a) *Law of readiness*: It has been proved by psychological researches that learners are likely to be more interested in their tasks if they are ready to take them up; if they know what they are expected to do and why. Definiteness of objective helps create readiness for learning, makes for greater interest, cuts down distaste; difficult subjects lose their unpleasant flavour and become interesting. In the project method, the teacher knows the extent to which children in his class are ready to meet new learning situations and he tries to present the material so that it will be in accord with the pupils' stage of readiness; situations are provided and purposing is done by the pupils. Thus work, when self-directed and self-motivated, is intrinsically interesting and is easily mastered.

(b) *Law of exercise*: The law states that if learning is to be effective and permanent, the knowledge learnt must be practised i.e. learning must be *exercised*. The project method always dictates activity of some sort or other. It always has, as its centre, a desire to do something and automatically causes a considerable amount of activity—physical as well as mental. The purpose of making a garden includes agricultural activities—actual digging, manuring and working in the garden. It is obvious that ample useful practice accompanies each learning unit.

(c) *The Law of effect*: The law requires that, learning to be effective, must be accompanied by a sense of success and satisfaction. Psychological experiments show that children learn best when satisfaction and success accompanies their work and that, if they are dissatisfied or fail, the learning process does not go smoothly. In the project method, the students get the joy and pride in the finished product of their labours which provide a spur to further creative work in life.

(2) *Gives freedom to the pupils*: It is because of the element of freedom, which it gives, that the project method is valuable in the early years of school life. The project method is a method of self-direction. When it is used, the child learns to improvise, to invent, to experiment, to find knowledge in all ways possible, to translate that knowledge into action until the need that has been felt is met. Thus is the creative mind developed.

(3) *Suited to the psychological concept of maturation:* The method provides the pupils with the sort of learning material that suits his particular stage of mental development. The more mature pupils are likely to go for the abstract and difficult features of the task in hand and leave the simple elements to the others without holding up learning altogether—this does permit postponement of the teaching of formal subjects until the emergence of felt needs. So pedagogically, the project method appears to accord well with the psychological concept of maturation.

(4) *Social values derived:* The advocates of the project method claim that pupils derive social values from the co-operative work

involved. For example, a local survey in geography can be subdivided so that separate groups take responsibility for making their own contributions which are subsequently pooled and become the class effort.

(5) *Training for social adjustment:* The method trains children to be prepared to meet situations, arising perhaps unexpectedly, but certainly out of life as it is lived in the pursuance of definite purposes. It aims at developing in them the capacity to adapt themselves, to adapt their environment, to make use of whatever is available and generally to meet a situation with resource. This is, of course, the most valuable training and the vital relationship with the community which it enables the school to maintain and the training in social adjustment which it gives, constitute one of the chief claims of the project method for adoption.

(6) *Saves children from insincerity and superficiality:* When a subject is learned not because of its functional value but because it is counted valuable by others, it is acquired very superficially. Intelligent action is replaced by mummery and show. And when the adolescent gains social applause hy this false coin, he naturally values means to his end—values hollow forms, poorly comprehended and sometimes unintelligent traditions, ceremonies and formalities. And, as in economics, these baser values, these baser coins—drive out the higher.

In a school, organized according to the project method, children learn things for their intrinsic value. They learn and they do because they understand the value of what they learn and do in the carrying out of their purpose. The project method of organizing learning, therefore, saves children from essential insincerity and superficiality.

(7) *Trains for a democratic way of life:* The Project method encourages children to co-operate, to think and act together for a common goal. It teaches students to be responsible and gives them freedom within the framework of *co-operative democracy*. Participation in a co-operative enterprise develops an enhanced sense of responsibility in children. Wholehearted devotion to the project of the moment cumulatively supplies a valuable moral training that the formalized atmosphere of the ordinary classroom makes much more difficult to foster. It presents young children entering school, who for the most part, tend to be sturdy little individualists, with unrivalled opportunities for acquiring social training. The method encourages co-operation instead of competition. All the pupils get equal right to do things in their own way without feeling rivalry against any one else.

(8) *Learning through practical problems solving:* The usual basis of class instruction with a fixed time-table ignores and indeed frustrates the natural bents of children and adolescents. In the traditional classroom, children are compelled to be passive when essentially they are

active. They are highly individual, yet the classroom situation treats them all alike. They are different in their rhythm towards work. Yet every forty minutes, the bell goes and changes the tempo. Project method is a radical departure from the whole conception of formal class-work and teaching subjects, by requiring learning to be done through solving of practical problems. The method encourages pupils to achieve a deeper insight into principles through actually seeing them in operation.

(9) *Student and the teacher grow:* In a project, both the student and the teacher grow. The student, stimulated by and encouraged in his exploration of many materials, will ultimately approach other areas of learning in a similar manner. Creative problem solving is the same, whether in clay, in wood or in numbers. The teacher will grow in her understanding of a child's creative developments.

(10) *Confers on school work a much-needed sense of reality:* As a consequence of its practical and social implications, the Project method has the advantage of conferring on school work a much-needed sense of reality. To a considerable extent, it does, in fact, seem to succeed in relating what goes on in school to the activities of life. In the modern world, with a progressive increase in the length of school life, this is an important consideration.

(11) *Intrinsic standard of evalution set up:* If the class, for example, sets out to keep a shop, they have a very practical test of the way in which they keep their accounts. In ordinary class-work, they may get half of their sums wrong, but there is no vital connection between them and their standard and their failure to come up to it. In the case of the shop project, their connection is most vital. The criterion of accuracy is brought home to them as it never can be in ordinary classroom work. Hence the chances of rapid learning and progress are much greater. Similarly, if the class is carrying out the project of building a room and the bricks have been badly shaped when the children come to build the walls, they come up against a situation which evaluates their work for them in a vital way, brings home the mistakes and so makes for rapid progress and true learning.

(12) *Satisfaction of completing the whole task*: It is an admitted fact that a child learns most effectively when he is able to complete a definite job, to finish the whole task. When work in a project is organised according to the project philosophy, it is divided into definite tasks which the child gets a chance to complete. He sees in front of him a definite unit of work—a unit which he can finish and so gain the pleasure that we have in a completed task. In this dividing up of work into a series of 'tasks', 'jobs' and 'projects', which he can finish in a reasonable time and then have something definite to show for his work, the project method, while making learning more interesting, also makes it more effective. Pupils get the joy and pride in the

finished product of their labours which provides a spur to further creative work in life.

(13) *Economical*: Through this method, the children take more interest and learn in the shortest possible time. Atmosphere of freedom is conducive to learning; children pick up knowledge without strain. The pupils do not get bored as there is spontaneity and variety in the work. Pupils learn best by doing, by experiencing difficulties personally and solving them. Whatever they learn, stays with them for a longer time.

(14) *Upholds the dignity of labour:* In this method, students are required to do work with their own hands. Thus students develop a taste for all kinds of practical work. Qualities of self-reliance, resourcefulness and responsibility are engendered among the pupils.

(15) *Ideal for science work, handicraft, practical geography, and dramatic work in literature:* Pupils learn geography, art, language, measurement and practical geometry in a natural and playful way.

For example, in a chemistry class, the teacher can have one group of students submit a project report on industrial chemistry, a second group on consumer chemistry, a third group on environmental chemistry, a fourth group on agricultural chemistry, a fifth group on medical chemistry and a sixth group on extending the nature of human knowledge. He can collect the reports, evaluate them and arrange a panel discussion on their reports in class. This will enable the students to pursue a field of greater interest and present their findings to the class. After the discussion, each student should write a report on all the aspects of chemistry discussed, emphasising the role of chemistry as it pertains to him.

**Limitations**

(1) *Learning haphazard and incidental:* Knowledge is only acquired by the coincidence of its being valuable to the project. No stress is laid on systematic foundations; instead, titbits useful to the project are acquired. To learn how to work decimals successfully, for example, it is futile simply to work a problem once to finish a project. A successive number of drills are required in order that the process may be retained. And, because the field of knowledge is so great, critics claim that it is better to present the pupils with a selected and organized body of knowledge than in project method to allow him to accumulate knowledge haphazardly.

(2) *The role of communication subordinated to the glorification of active learning:* The future of education surely lies in improvements in the methods of communicating information and experiences to the pupil. Communication is the basis of our modern civilization and progress is intimately connected with advances in it. The wireless and television set should not be frowned on because their use involves 'passive reception, rather than 'active doing'.

(3) *Underestimates man's power of imagination, which enables him to savour the full experience of another, without the necessity of undergoing the experience himself*: It cannot be denied that communication enables the experience to be passed on accurately and realistically. The task of education is to show children how to learn from other's experience as much as from their own.

(4) *The practical difficulties of covering a syllabus rule out the project method as the basis of teaching in most schools*: Children, taught by the Project method, often show astonishing knowledge of details in odd things but reveal depths of real ignorance outside their projects. A history teacher may deal with the construction of an ancient house with great thoroughness and yet his pupils will have no knowledge of the administration of Chandragupta Maurya.

(5) *Time-consuming and limited by availability and cost of materials:* There are many occasions when information or explanation can so much more economically and efficiently be conveyed to a whole group at once that to insist on learning only through the project becomes an absurd concentration on means rather than ends.

(6) *Most valuable among pupils of lesser academic ability, for it provides an opportunity for the practical enthusiast:* To the intelligent child participation in a laborious project to discover the same information as could be had from one lecture from a teacher often appears wasteful and frustrating. Thus it is said *the method may fit those who cannot listen, but it is very questionable whether it has the same value for those who can.*

(7) *Leaves gaps in the pupil's knowledge*: As the approach is mainly direct, and apparently unsystematic and the logical arrangement of a subject is something to be reached rather than something from which a process can begin, it is a goal rather than the starting point—*The method leaves gaps in the pupil's knowledge.* Besides, the logical conception may exist in the teacher's mind, till sufficient material has been acquired. The methodical and logical teacher can quite well keep account of all the gaps that are left in the orderly presentation of his subject, and make sure that at the appropriate moment this gap shall be filled, and its content explained in relation to the matter which, had been picked up in the irregular way involved in learning by project method.

(8) *May be too ambitious and beyond the pupil's capacity.*

(9) *For success in schools run on the basis of this method, the requisite conditions demand more in the way of buildings and equipment, more ability, zeal and preparation on the part of teachers, more science and a higher art in the work itself than is needed in other schools*: The employment of this method will call for more highly qualified teachers and a more generous staffing ratio than traditional programmes of teaching.

(10) *Opportunities for correlation with the academic subjects are extremely limited*: The wise choice of graded projects, one after another, may rectify this partly. While the projects correlate the academic subjects only partly, they lose the chances of internal correlation that the subject has within it.

(11) *The method of organizing instruction is unsystematized and upsets the regular time table of work:* But it must be remembered that the charge of lack of systematization holds if we take the narrow view that a portion of each subject in the curriculum must be done everyday of the week.

Moreover, under a project system of organisation, while the regular time-table may be dispensed with in order that the continuity of work and interest may not be broken, the teacher can see to it that within a given period of a month or a term or a year, the total amount of time given to a subject is as much as is necessary. Naturally a teacher will not allow a subject to suffer neglect for too long a time.

(12) *Difficulty to eusure any kind of systematic progress in instruction:* It is not only that the choice of the subject-matter itself is liable to be *accidental*, that actual learning of the subject-matter is also likely to be *incidental*. When properly motivated, *incidental learning* has its due plące in the process of education, but *incidental learning* is in general far more efficient. With incidental learning, a great deal of value is apt to be overlooked in any branch of study. Moreover, some highly systematic subjects, such as mathematics, simply do not respond at all to incidental treatment.

Most practical educators agree with Prof. Godfrey Thomson when he says, "incidental learning, though most important, is not enough." It will be better, therefore, if there is a minimum of logical arrangement in instruction, and what is learned in the following out of the projects is systematized and organized. For organization of knowledge not only makes for economy of effort, it also capitalizes it for future use. There is great truth in the cautious conclusion of Thomson that, "a judicious mixture of regular drilling with incidental learning is probably best."

(13) *No new teacher, can alone operate the project method as originally conceived by Dewey, for this requires a complete reorganization of the school*: But it may be possible for him to initiate a modified project in his own particular subject on a moderate scale without upsetting the traditional school framework.

(14) *The resultant education emphasises relationships in breadth not in depth:* By this is meant that while the educative effects will tend to be integration of the various elements of the pupils' experience into a well-knit whole, it is only at the expense of some loss of consolidation within each individual element.

(15) *May be too ambitious*: It may well prove beyond the capacity of the pupils to bring to a successful conclusion. Should this happen, the outcome can only be discouragement and failure.

(16) *Children may ignore Speck's maxim working from the simple to the complex*: On the other hand, if they are merely left to tackle a complex project which is clearly beyond their abilities, even though of their own choosing, they will in all likelihood very soon lose any interest in the particular activity. Admittedly, technical accuracy of finish is of less significance than encouragement of the creative impulse. For this reason, it may sometimes be desirable to give the pupils their head, provided always that at the same time, we do not allow them to be satisfied with inferior standards of work. In the last analysis, however, we must firmly lay the blame at the teacher's door, if by a process of trial and error, the pupils do not eventually learn to match their abilities and aptitudes.

(17) *In older children the critical powers outrun their executive skill, hence their criticism of the products of their work, may inhibit them from taking fresh projects*: Younger children, on the other hand, though subject to discouragement, are not, as a rule, particularly critical of their own creative efforts. In their case, even the intrinsic difficulty of the project selected may well have a disheartening effect than the sheer length of time required to complete it. The fact is that young children, although often capable of sustained effort, while engaged on constructive work, generally also have a relatively short interest span. What they look for is a quick return for effort expended and so they are usually quite satisfied with relatively crude results. The moral here is that, for these younger children, a project that is long drawn out even though initially interesting and well within their capacity, may easily begin to lose its appeal after two or three weeks. The converse, of course, also holds good, namely that some projects, by reason of their restricted time span, are necessarily too superficial to be educative in any real sense.

(18) *Time bound projects introduce artificiality and may require more than necessary help.*

(19) *Projects may be adopted or abandoned at will*: They may be allowed to serve as little more than a pleasurable means of occupation, rather as crossword puzzles too often engross the attention of adults whose energies might more profitably be engaged on truly productive tasks.

(20) *It is not so easy to formulate projects having a satisfactory degree of width and comprehensiveness at a later stage of education.*

(21) *The project approach often results in an incomplete mastery of the tools* of learning which are essential means to child's education later.

### The teacher's role

The teacher occupies a very important position in the Project method. While it is really a sound practice that pupils should plan and execute a project, but, in all this accomplishment, the teacher has to play a vital role. The teacher has got mature experience, deeper and broader knowledge than the pupils. For this very reason, his guidance and prompting is not only *desirable* but also *indispensable.* The pupils are out on a venture; they need suggestions and guidance at every step. The teacher has to save the pupils from faltering and floundering. So the teacher has to skilfully guide in the selection, trying at the same time, not to interfere any more than is absolutely necessary in the business of choosing. The teacher is supposed to give help when help is required for unrequired help is not help, it is hindrance to development. So, let the teacher be a good prompter, just behind the curtain and not make his appearance on the stage itself, for stage is meant and reserved for the actors and actresses—the pupils.

The relations of the teacher to the pupils are to be much closer and informal than it is in an ordinary classroom teaching. He is there like a friend or elder brother with rich and mature experience. He is a director and not a dictator. His psychological knowledge must be thorough and scientific.

The teacher must be a keen observer and a true sympathiser. He should be able to win the goodwill of the pupils so that they would not feel discouraged. He should be a storehouse of information and knowledge so that he may anticipate the difficulties before-hand and suggest remedies as and when necessary. He should command respect of the pupils so that the pupils might look to him for help, guidance, solace and affection. No method, however good, is ever superior to its teachers. So the need is for devoted educational leaders.

The teacher has still another role to play. He has to see that all the pupils work co-operatively. He has to see that there are no workers and shirkers.

The Project method is based on correlated teaching. This presupposes that the teacher should have knowledge of many subjects. He has to guide the execution of the project in such a way that the maximum number of subjects concerned are learnt by the pupils; gaps are properly filled. He should see that not only practical knowledge is to be imparted but complete and integrated knowledge is given. Experiences and contributions of the group should provide increased knowledge in the particular context.

Lastly, the teacher should be able to spare enough time for the success of this method. Only a devoted and enthusiastic teacher can make a success of this method, not the discouraged, time-serving, bell-watchers.

## Conclusion

Thus the Project method gives us a wonderful practical approach to the learning of both theoretical and practical problems. If it is difficult to follow the letter of the project method, it will be better if we do not ignore its spirit. And, there is no doubt about what the spirit is; it is in the words of Raymont "whole hearted purpose on the part of the pupil."

Like everything else that one wishes to introduce in a school, one must be content to make progress gradually here too. It will imperil our chances of success if we try to go too quickly. It is better to make sure of our ground as we go. We have to remember that a change in methods of teaching, so thoroughgoing as the adoption of the Project method, cannot be brought into operation with success expect gradually and cautiously. No teacher can do his work with a new method until he has welded it on to his educational faith and has coloured it with part of his personality. In short, the responsibility of the success or otherwise of the method rests with the teacher.

## The project method versus basic education

Some writers confuse Basic Education with Project method and vice versa. They are of the opinion that there is no fundamental difference between the two. Let us try to find out resemblances and differences.

*Similarities:*

(1) The principle of learning by doing has been advocated by Mahatma Gandhi, Dr Kilpatrick and Dr Dewey. In both, knowledge is correlated with some activity. In Basic Education, some craft is made the medium of education; in the Project method learning takes place through purposeful activity.

(2) In both, the social and physical environments of the child are fully utilized. Sufficient attention is given to the interests of the child.

(3) The subjects are not taught separately in both. In Basic Education, all the subjects are correlated with the craft or social and physical environment; in the Project method subjects are taught in a correlated and integrated form through the project.

(4) Child is the focus in both the systems. Everything is done for the improvement and development of the child.

(5) Both Gandhiji and Dewey try to modify the original nature of the child by providing him with helpful experience, particularly of social character in which he has direct participation.

Points of resemblance end here. There are certain fundamental differences between Gandhiji's craft-centred education and Dewey's Project method.

*Dissimilarities*:

(1) The craft which is selected in Basic Education, is not only the medium of education, but can also become an occupation for life. This craft is adopted as the medium of education throughout the academic career of the child. When the child finishes his education, he is quite well up in the craft. But there is lack of integration in the Project method. As long as the activity or project continues, the children are interested. As soon as the project is completed, the acquired skill or knowledge is also in danger of being forgotten. After the completion of the project, the material which was collected for the project, becomes a museum piece.

(2) In Basic Education, crafts are selected by the school or departmental authorities. There can be three or four crafts in a school; the pupils will have to select out of the crafts started in the school. The teacher will give guidance to the pupil in the selection of the craft. On the other hand, projects are unlimited and a series of projects can be taken up by the pupils one after the other. Situations will be provided, discussion will take place, project selected with the necessary guidance of the teacher, proper planning and execution undertaken.

(3) The project need have only educational possibilities, but the craft must have economic possibilities as well. It must be a productive craft which results in saleable goods.

(4) The project stresses integration of subjects more than correlation—while integration and correlation are alike features of learning through the craft. Both relate to the knowledge of life of the pupil but while the project method relies on incidental learning for the most part, the basic system definitely looks to logical and systematic teaching of subjects as well.

(5) Basic Education is a system of national education but Project method is a method of teaching.

(6) In Basic Education, education is given through real life. But in Project method, *life-like* situations are created and project is completed in the natural way. On one side, there is life, but on the other side *life-like* situations have to be created.

(7) In Basic Education, learning and earning go side by side. An attempt is made to make education self-supporting as much as possible. But in Project method, instead of income, there is expenditure, and sometimes education through this method becomes an expensive affair.

### Summary

1. Project method is the direct outcome of the philosophy of pragmatism. It is not new as Froebel also refers to project in his book—*The Education of Man*.

2. Project is considered to be a wholehearted, purposeful activity carried to completion in its nature setting.
3. The method is an embodiment of a new way of looking at the pupil and of a new way of teaching him to live. Experience is utilised for educating the child. It is a large unit plan of teaching.
4. Projects are of four types—Producer Type, Consumer Type, Problem Type, Drill Type.
5. Project, to be significant educationally, should have evident worth, bear on a great number of subjects, should be timely and challenging, and feasible.
6. The method has many merits:
    - (1) It is in accordance with the psychological laws of learning.
    - (2) It gives freedom to the pupils.
    - (3) It accords well with the psychological concept of maturation.
    - (4) Pupils derive certain social values.
    - (5) It gives training for social adjustment.
    - (6) It saves children from essential insincerity and superficiality.
    - (7) It trains for a democratic way of life.
    - (8) Learning through solving of practical problems is emphasised.
    - (9) Both the student and the teacher grow.
    - (10) The method confers on school work a much-needed sense of reality.
    - (11) An intrinsic standard of evaluation is set-up.
    - (12) Child gets the satisfaction of completing the whole task.
    - (13) The method is economical.
    - (14) The method upholds the dignity of labour.
    - (15) The method relates well to science work, handicraft, practical geography, and dramatic work in literature.
7. There are some limitations also:
    - (1) Much of the learning tends to be haphazard and incidental.
    - (2) The role of communication in education is subordinated to the glorification of active learning.
    - (3) Man's power of imagination is underestimated.
    - (4) There are certain practical difficulties of covering the syllabus also.

(5) Projects are time-consuming and are limited by availability and cost of materials.
(6) The method is not suitable for the brilliant.
(7) The project leaves gaps in learning.
(8) Projects may be too ambitious and beyond the pupils' capacity to accomplish.
(9) Adequate buildings and equipment and highly qualified staff are required.
(10) Opportunities for correlation with the academic subjects are limited.
(11) Organization is difficult.
(12) Systematic progress in instruction cannot be ensured easily.
(13) The method requires complete reorganisation of the school.
(14) The education given by projects is likely to emphasise relationship in breadth rather than in depth.
(15) Project may turn out to be too ambitious.
(16) Graded projects may not be taken up.
(17) Children want quick returns for effort expended and so they are usually satisfied with relatively crude results.
(18) Projects may be adopted or abandoned with too easy complacency.
(19) At a later stage of education, it is not so easy to formulate projects having a satisfactory degree of width and comprehensiveness.
(20) Project approach often results in an incomplete mastery of the tools of learning which are essential means to child's education later.

8. The teacher in the Project method occupies the place not of a dictator but director.
9. There are some points of resemblance and many points of contrast between the Project method and Basic education.

## Questions and Problems

1. Define the project. What are the main stages involved in the Project method?
2. "To be truly educative, a project must afford genuinely spontaneous activity and at the same time generate corporate enthusiasm." Discuss.
3. Why is the Project method of special interest to the modern educator? Enumerate the limitations of this method.

4. Enumerate the characteristics of the Project method. What scope does Basic Education offer for the use of the method?
5. What is the importance of making your teaching purposeful to the child? In what ways can this be done? Illustrate by taking a particular age-group.
6. "Knowledge is experience and it is assimilated through activity." How will you make educational activity both purposive and meaningful?
7. "The teacher in the Project method occupies the place not of a dictator but director." Comment.
8 Discuss the place and importance of the teacher in the Project method.
9. Discuss the points of similarity and difference between the Basic Education and the Project method.
10. How can the Project method be adopted to teach ordinary classroom subjects? Give examples and describe the various steps in the carrying out of a project.
11. "In the Project method, Stevenson tried to correlate the activities of the school with the life outside." Critically examine this statement and illustrate your answer by describing the essential characteristics of the method.

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# 18

# THE DALTON PLAN

*Underlying principles—Features of the Plan—Advantages of the Dalton Plan—Limitations—Conclusion—Summary—Questions and Problems—Bibliography.*

The Dalton Plan is one of the most notable attempts made to individualize instruction in the middle and high classes. The Plan was experimented by Miss Helen Parkhurst at Dalton, Massachusetts. Miss Helen was made responsible for teaching a group of thirty children widely varying in ages. She, being acquainted with Montessori's method, discovered that children may be taught better if some scheme based on individual differences was introduced. Dalton Plan was thus the fruit of educational experimentation in teachting methods in the Dalton High School by Miss Helen Parkhurst in 1920.

Dalton Plan is not a particular method of teaching any particular subject but is rather a method of organising the work of a school to promote purposive self-activity. Its aim is to solve the problem of differing rates of progress which are observable among all groups of children even when they are classified by ability. It seeks to provide equal opportunities of advancement to bright and backward pupils alike without sacrifice of thoroughness, and, by its very organisation, it affords scope for the development of the social sense. In the words of J.H. Panton, "Among other things, the plan is an attempt and a highly successful one, under certain circumstances to provide an education in self-development and social co-operation for the pupils." Also, the teacher is free to adopt the normal organisation in any manner he desires to the particular circumstances in which he and his class are placed. Thus, not only the whole school but single classes may be brought under the scheme.

The plan stresses both the independence of the pupil to work at his own rate and consultative capacity of the teacher.

The traditional curriculum is preserved but the time-table is discarded.

**Underlying principles**

1. *The Principle of individual work*: The Dalton Plan is based

upon one of the soundest principles of pedagogy that individual works at his own rate. There should be no time restrictions for doing a piece of work; individuals are permitted to follow up their own speeds. It is often seen that a child is often bright in a subject like mathematics or science and vice versa. In that case, a method which will allow the student to cover the portion quickly in the subject in which he or she is bright, will provide the individual with extra time to be devoted to a subject in which he is weak. Thus the student may spend only a few minutes in one laboratory and two hours in another.

As the individuals are free to proceed as they please, very bright students may finish two grades' work in one year, having done two contracts in all subjects, while slower students may lag behind, especially in those subjects where one is not able to finish even one contract in a year. Thus each individual works at a different pace, but no one is kept behind and no one is rushed through.

2. *The principle of freedom*: As a guiding principle, Miss Helen Parkhurst gives freedom a prominent place in her plan—freedom to study what a pupil wishes. The plan abolishes a rigid time-table and the usual system of class instruction. Children are free to move from room to room to consult one another, and to work in any particular subject.

3. *The principle of self-effort*: Miss Helen Parkhurst throws the responsibility of education on the shoulders of the pupils. There is no doubt about the fact that learning is most effective when it is the product of self-effort and that self-activity, self-effort, self-learning lead to better individual development. Working through the assignment and, then standing a mastery test, develop self-reliance in the pupils and give confidence.

4. *The principle of group interaction*: Miss Parkhurst has explained this principle in the words of John Dewey. "The object of a democratic education is not merely to make an individual an intelligent participator in the life of his immediate group, but to bring the various groups into such constant interaction that no individual, no economic group could presume to live independently of others.

5. *The psychology of viewpoint*: In the words of Miss Parkhurst "A child never voluntarily undertakes anything that he does not understand," but he does launch, "pursuits which he can understand" and "in initiating his own pursuits, he looks at a thing from all angles and he plans to carry out his objectives." This "*psychology of a point of view*" is the underlying motive force of the stress on individual work.

**Features of the plan**

The following are the chief features of the plan:

1. *Assignments or contracts and check-ups*: In the Dalton Plan, the work for each grade in each of the academic subjects is laid out

in a series of related jobs and contracts. The teachers outline the work of the year so that each pupil may know about the nature and scope of the work that he is expected to complete in each subject. The whole year's work is further subdivided into monthly units. In the beginning of the session, the pupil is given some definite assignments for the whole year in each subject in order to let him know the nature of the work he has to do. Monthly 'contracts' are made and they are divided into weekly assignments. Pupils are supplied with guide-sheets, problems to be tackled, works of reference to be consulted etc. In short, complete guidance is given for the work to be done.

Organizing the work and the time spent on it, is left to the pupil but before the child undertakes the month's assignment, he has to sign a promise to complete the work to the entire satisfaction of the teacher within the fixed time limit. A new assignment can be given to the individual child only on the completion of the first one. A child is permitted to progress at his own rate through the units of each contract, but before he is allowed to begin the work of another job in the same subject, he must also have completed the corresponding jobs for each of the other subject he is taking. At least once each month, the pupil is expected to show an "even front" in all subjects, thus preventing continued emphasis upon favoured sebjects, and neglect of more difficult ones. If a pupil fails to complete his assignment at home he has to finish it in class under the eye of his assignment teacher, but *compulsion is only introduced when freedom has demonstrably failed.* Check-ups are planned with reference to individual needs. These are administered in various ways. Some of them are self-corrected; others are checked by fellow pupils and still others are corrected by the teacher, or are handled in pupil-teacher conferences.

2. *Subject teachers*: In the Dalton Plan, instead of class teachers, there are subject teachers, each teacher specializing in his own subject. The duty of each subject teacher is to give all assistance to the pupil in his special subject for the successful completion of the contract. The teacher gives individual guidance to the child, solves his difficulties, offers suggestions for the improvement of the work, gives encouragement to the individual child to complete the assignment in time. It is likewise the teacher's responsibility to explain assignments and to make suggestions concerning the use of equipment. The teachers, thus, give up teaching, and become advisers who keep regular hours in certain subject laboratories where they can be consulted. But they are not supposed to interfere with the arrangement of the pupils, who may or may not use their opporunities of consulting them. The teachers confine themselves to five duties:

(i) To preserve an atmosphere of study in the room.

(ii) To explain any detail of the assignment.

(iii) To give information for the use of departmental equipment.

(iv) To give suggestions with regard to the methods of attacking particular problems.

(v) When the need arises, to explain a point and its relation to the general principles of the subject.

3. *Subject laboratories*: Instead of classrooms, there are subject laboratories with a specialist teacher in attendance to give guidance. The old-time classrooms are converted into laboratories with children as the experimenters. Properly furnished, a laboratory would enable a child to have access to vast literature on a subject. Each subject laboratory is equipped for the study of that particular subject, with books on the subject, apparatus, excellent reference material and appliances, maps, charts, models, etc. The pupils take the laboratory as a workroom, a classroom, and library to enter or leave as and when they please. There is no time-table and no periods etc., because there is no limit to the time a pupil may spend in any particular laboratory. The laboratory is under the charge of a teacher who gives counsel and information regarding the use of laboratory equipment. He is expected to offer suggestions regarding ways of attacking problems. Under the Dalton scheme, the pupil and not the teacher, asks most of the questions.

4. *Records*: Pupil's progress in each subject is recorded by means of graphs and diagrams. There are three records—two are maintained by the pupil showing his progress in part and as a whole, and the third by the subject teacher in the subject room. These graphical records are a mirror which can easily show the pupil's progress and where he stands as compared to his other class-mates. In order to make the boy more conscious of his responsibility, he is made to record the progress of work himself on his card. The teacher's graph which is hung up in the subject room is a means of checking up the work of each individual child and to guide him accordingly. This graph is a link between the teacher and the pupil and brings them in closer contact for effective teaching and learning.

5. *Conferences*: Under this plan, in addition to the assignments and contracts, some provision has been made for discussion work. The teacher may hold conferences whenever he deems proper. These conferences may last from five to forty-five minutes. In these conferences, common difficulties are discussed. He can also call a conference when he wants to give an appreciation lesson in poetry or history or when he likes to introduce something new or difficult to the class. These class conferences are generally held in the afternoons. Conference periods for teachers are so scheduled that the teacher has non-conflicting hours for every group taught.

6. *Plan suitable for the middle and high classes*: The Dalton Plan requires all children to have command of the skill subject before they are permitted to work under the contract plan. The contract

itself shows an agreement which only adults can undertake, for they alone can understand the implication of a contract. It cannot, therefore, be employed in the primary school.

**Advantages of the Dalton Plan**

1. *Instruction is individualized*: The Dalton Plan makes allowances for individual differences particularly in the place of working. Each pupil gets an opportunity to work at his own speed and is not hurried along at the speed of other pupils, nor is he kept back because of his slower class-fellows. The teacher comes in contact with individual children. The individual differences of the pupils can lead to employing of methods that will utilize them to advantage. The personality traits of learners are diagnosed and used towards educational growth. Thus shortcomings of collective teaching are counteracted.

2. *Continuity of work is assured*: As the child is free to work as and when he pleases, continuity of work is assured. Absence from school for any reason does not mean that the pupil's work suffers much in consequence as happens in the ordinary class teaching system. In the school, no bells interrupt their work. The pupil will not have to give up everything just at the "ringing of the bell." Time will not split into those exasperating "hours" which Donne describes as "the rages of time" a piece of work begun can be finished as a whole and its completion need not be postponed till the next hour allocated to the subject comes round. Moreover, the assignment of work, for a period, perhaps of three weeks, though varied in content, can be treated as a whole; an interest in one subject can be followed up and pursued to its end before the next subject is tackled, and that subject can be chosen in turn which is most closely associated in interest with its precursor. There will be no failures—no pupil will be compelled to repeat the dreary round in order to pass. Then a pupil can be promoted to the next class or grade at any time of the year, according to his standard of work. There is no wastage of time on the part of any of the pupils.

3. *Fosters initiative, self-reliance and self-discipline*: The Plan aims at giving the child freedom, making the school a community where the mutual interaction of groups is possible. It approaches the whole problem of work from the pupil's point of view, giving him more responsibility and interest in his education. When pupil undertakes a contract or assignment, he tries his best to complete it; he devotes his heart and soul in the work. He prepares his own material, learns to handle and make proper use of many different types of books; he seeks knowledge and information from various sources. This responsibility fosters initiative, self- reliance and self-discipline.

4. *Problems of formal class discipline simplified:* When the child is interested in the work he undertakes, the question of creating

indiscipline does not arise. Traditional methods of class teaching leave too much to the teacher and too little for the pupil but Dalton Plan strikes a balance with initiative and responsibility shared between the teacher and pupil. There is freedom with control since the teacher draws up the assignment. The child works in an atmosphere of freedom. There is no compulsion or external imposition to force him to do a particular work. No pupil is kept in the classroom against his will. The Plan gives the pupil practice in working outside the formal classroom atmosphere and so fosters self-discipline. Thus, there will be no truants, mischief-makers or backward pupils.

5. *The graph records are useful:* The graph records are useful in checking the progress of the pupils. Pupils record their progress on the graph and thus are in a position to show how much they have completed and where they stand. The teacher gets a full picture of the student before him and comes to know their difficulties and needs. Thus the work of the teacher is also simplified; appraisal of the student's work is crystal clear; there is no need of frequent tests and awarding of marks.

6. *Gestalt view of work:* Psychological researches have shown, when a total survey of the field of study is made and relevant pursuits are weighed, work is facilitated and approach to the work is best planned. In the Dalton Plan, the child surveys the whole field of work, and takes it up in small parts but with reference to the whole. Thus better and quicker learning is possible.

7. *Easier to adapt to existing educational demands:* The Dalton Plan does not challenge the traditional curriculum, it is easier to adapt to existing educational demands.

8. *Compulsory homework not a necessity:* As the pupil is free to study when and where he likes, the majority of pupils prefer to complete their studies in the subject-laboratories in the school. If he wishes to do some extra work or read intensively on some topic of special interest, he can do it at home, but this is purely voluntary. There is no need of alloting compulsory homework otherwise.

9. *Good for low and high ability pupils*: Individualized instruction, through the plan, often elevates lower level students to much higher areas of accomplishment, and occasionally raises students of already high ability beyond expectations.

**Limitations**

1. Smaller classes and generous staffing are required to make a success of the Plan. Given these conditions (and they are, perhaps, the most essential conditions for any form of educational advance), the Plan might well make a substantial contribution to the solution of so many problems.

2. Preparation of graded assignments is also quite difficult.

3. Oral work is not given adequate attention.

4. Teacher must be an excellent worker. With an average teacher, the plan cannot work successfully.

**Conclusion**

In spite of these limitations, this experiment is full of promise. We can follow this plan for some subjects; we can have class teaching at times and group teaching for some other subjects. The school time-table may be so framed as to give time for individual study to every child. Graph system of keeping records is really commendable. It can be used in our schools with excellent results. Assignment system can be used in almost all senior classes.

### Summary

1. Dalton Plan is a good attempt at individualizing instruction in the middle and high classes.
2. Underlying principles of this plan are:
   - (i) Individual work.
   - (ii) Freedom.
   - (iii) Self-effort.
   - (iv) Group interaction.
   - (v) Psychology of a point of view.
3. Chief features of the plan are:
   - (i) Assignments or contracts and check-ups.
   - (ii) Subject teacher.
   - (iii) Subject laboratories.
   - (iv) Records.
   - (v) Conferences.
   - (vi) Plan suitable for the middle and the high classes.
4. There are many advantages of the plan:
   - (i) Instruction is individualised.
   - (ii) Continuity of work is assured.
   - (iii) The plan fosters initiative, self-reliance and self-discipline.
   - (iv) Problems of formal class discipline much simplified.
   - (v) The graph records are useful.
   - (vi) The child surveys the whole field of work. Better and quicker learning is possible.
   - (vii) It is easier to adapt to existing educational demands.
   - (viii) Compulsory homework does not remain a necessity.
   - (ix) Good for low and high ability pupils.

5 The plan has some limitations also:

- (i) Smaller classes and generous staffing are required to make a success of the plan.
- (ii) Preparation of graded assignments is also quite difficult
- (iii) Oral work is not given adequate attention.
- (iv) Teacher must be an excellent worker.

### Questions and Problems

1. What are the essential features of the Dalton Plan?
2. How far can the Dalton Plan be used in our schools today? Give concrete examples and point out the difficulties involved.
3. Dalton Plan was tried at several places in India, but did not succeed. Analyse the possible causes of its failure and suggest remedy.
4. What are the advantages of the "assignment system"? How far and in what subject do you consider the plan workable in the high classes of a school? What precautions would you suggest for its successful working?
5. To what extent does the work of a teacher under the Dalton Plan differ from that of an ordinary teacher? What are his special responsibilities?

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# THE GARY SYSTEM

*William Wirt's ideas—Principles of Gary System—Conclusion—Summary—Questions and Problems—Bibliography.*

### William Wirt's Ideas

The Gary system, as a method of school organisation and a method of teaching, is known after the name of the place Gary, Indiana, where the system was first introduced by William Wirt (1874-1938) as superintendent of that school. According to the organisation of the plan, the system has been called by various names e.g., work-study-plan school, duplicate school, comparison class school, platoon school, and alternating plan school.

Like other great educators, William Wirt held that the school should educate not only intellectually, but also physically, manually, scientifically, and artistically. To achieve this all round purpose, the school must be equipped with playgrounds, gardens, swimming pools, science laboratories, machine shops, music and dance studios, and so on. In addition, the school activities must be related with activities outside the school.

The ideal Wirtian school included:

(1) Play and exercise;
(2) Special work in shop or laboratory;
(3) Social and creative activities in the school auditorium as well as in the community; and
(4) The standard academic subject-matter.

*Work and play* were deemed an indispensable part of education. William Wirt believed that the main business of the school is to utilize to the best advantage the time that the child spends in school and added that "The greatest problem of the school is to counteract and overcome the demoralizing influences in the child's life in the streets, and alleys, and unfortunately in many homes, so called."[1] Five hours of a child's average daily routine, it appeared to Mr Wirt, were passed fatuously, and often very dangerously, in the Gary streets and alleys. So, William Wirt wanted that the children should be kept occupied in the school activities for as long a time as possible. He emphasized the optimum utilization of the school plant.

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[1] Report on Gary Schools, 1908.

**Principles of Gary System**

1. *Multiple use and balanced load:* According to this principle, it is not necessary to provide a school seat in a classroom for the exclusive use of each child nor an auditorium seat for each child's exclusive use nor a playground for each child. The idea 'a seat for every child and every child in his seat' is discarded. Instead *maximum load distribution* is suggested. For instance, half the student populace may be seated in classrooms; one-fourth may be found in special workshops for manual training, music, art, science, geography and history; one-eighth may occupy the auditorium; and the remaining pupils may be on the playgrounds and in the gymnasiums. As two or three hours were considered sufficient for the school subjects, the classroom was to be used alternately by two groups—(platoons) since neither required such a room more than two or three hours daily. These groups could alternate between the classrooms and the other activities already mentioned.

The principle of multiple use and balanced load can effect a lot of economy in plant requirements. The saving thus affected is utilized for providing such additional facilities as playground, gardens, gymnasiums, workshops, swimming pools and so on. Thus, richer education in made possible.

2. *Balanced load on a large scale:* Mr Wirt emphasized the balanced load on the school plant on a large scale. The school day, for instance, was lengthened, beginning in the higher grades at eight and continuing till five. The motive behind this was not only to promote economy and efficiency, but also to do work. Not only the school day was lengthened but evenings and Saturdays were also put into use. Evenings were used for instruction in sports.

3. *A complete school:* Described as "a playground, garden, workshop, school centre, library and traditional school under the same management," the Gary school is the so-called *complete school* where under one roof are found children of all ages—from the kindergarten to the high school.

4. *School and Society intimately related:* In Gary school, the children do the things that have meaning to them as children. Since education tends to be socialized and practical at Gary, special stress is laid on vocational training. Instead of hiring the usual special teachers, skilled professionals are employed. Expected to keep the school plant in repair and first-rate condition, these workmen are also asked to assume the teacher's roles. The skilled professionals teach the craft to the students who learn their job by working with their masters. The

number of trades is quite large—besides cabinet makers, printers and plumbers, there are carpenters, painters, electricians, machinists and many others. In their workshops, the student is put to work. He makes and repairs school furniture, and becomes familiar with his almamater's clocks, bells, lights, and motors, the secrets of paints, their mixture and application. The same procedure prevails in domestic science. Here the students help to prepare actual meals, serving them in the school lunch room to fellow students and teachers. In the Platoon school, auditorium plays a very efficient role in the socializing programme. Various group activities are conducted—choral singing, dramatics, movies, concerts, debates, orations and the like. Everyday the pupil in the Gary school spends at least an hour in the auditorium.

**Couclusion**

Thus, Gary system, as a method of organisation of the school, tries to ensure economy and maximum use of the school plant—the greatest good of the greatest number, as they say. As a method of teaching, it emphasizes that the students are not only to acquire knowledge or skill but a simultaneous development in the social, aesthetic and physical aspects of the personalities of children. It is a practical device to combine work, study and play together in the most economical manner, more or less, after the fashion of the Gandhian scheme of Basic Education.

The scheme can help us in solving the problems of unwieldy classes and congestion in schools. Schools in India are faced with the problem of coping up with population explosion. More equipment, more furniture, more teachers are needed. Duplicate schools can help us to meet the big problem. Good education, imparted in an economical way, is the only answer to meeting the demands of 'astronomical, numbers of children in need of education.

### Summary

1. William Wirt wanted that the school should educate, not only intellectually but also physically, manually, scientifically, and artistically. The school should include play and exercise; special work in shop or laboratory; social and creative activities; the standard academic subject-matter.
2. The major principles of Gary system are:
    (i) Multiple use and balanced load.
    (ii) Balanced load on a large scale.
    (iii) A complete school.
    (iv) Intimate relation of school and society.
3. The scheme can well suit India. Good education can be imparted to huge numbers in an economical way.

## Questions and Problems

1. Describe the Gary system or platoon organisation.
2. What are the important principles of the Gary system? Can this system suit India? If so, why? If not why not?

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# THE HEURISTIC METHOD

*Prof. Armstrong's efforts at teaching science—The underlying principles—Procedure—Teacher's role in the method—Heuristic method and the curriculum—Merits of the method—Limitations—Summary—Questions and Problems—Bibliography.*

The name of this method is derived from Greek letter 'Heurico' which means 'I discover' or 'I find'. It is a psychological fact that as compared to acquiring knowledge or information from others it is more efficacious to acquire the same through personal effort at probing or discovering. On this fact rests the value of Heuristic Method in which one learns by placing oneself in the position of an original discoverer or even inventor.

## Prof. Armstrong's efforts at teaching science

Prof. Armstrong advocated Heuristic method, half a century ago, by which the pupil was to find the answer to his problems by his own unaided efforts. When science first became a school subject, it was often taught without the laboratory practice which provides first-hand contact with concrete things. In consequence, it became a list of facts and technical terms to be memorized; discovery and experiment played little part. The Heuristic method attacked the evil boldly. The teacher set a problem for them in the laboratory and stand aside while they discovered the answer. It was presumed that, if knowledge is to acquire genuine meaning, it must be experienced; if it is to be conserved and used in an appropriate manner, it must be gained by oneself. Thus, the child ceased to be a silent spectator and passive recipient of information; he became a discoverer of knowledge, an active independent engineer.

It is contended that acquiring of knowledge is to be a pursuit of truth, an outcome of personal experience. The purpose is to utilize the instinct of curiosity in children and prompt them to adapt a fact-finding approach to all aspects of learning. A spirit of enquiry and adventure is awakened through self-observation and experimentation. The pupils are trained to discover the facts, principles and laws, to systematise the knowledge learnt and to arrive at generalisations, all through self-efforts. The main aim of teaching by the Heuristic method, is not so much to teach facts of science, mathematics, grammar or history but to teach how knowledge of those may be obtained, systematized and used. In short, process is considered more important than the product. On closer study the method appears to be a second form of the "Inductive method." Dumvilla defines this method as follows:

"Heurison is nothing other than Herbert Spencer's inductive method of teaching."

**The underlying principles**

1. The principle of activity.
2. The principle of logical thinking.
3. The principle of proceeding from the known to the unknown.
4. The principle of purposeful experience.
5. The principle of mental development.

The method is based on self-thinking and self-study.

**Procedure**

As mentioned above, the pupils are led to discover the facts for themselves with the help of experiments, apparatus or books. Naturally the procedure adopted will be that of activity method and the actual way will be inductive. The child invents or discovers the fact. The method emphasises the process of growth of mind rather than doing cooked material into the empty vessels. The child struggles to know —he, in fact, is a research scholar.

For execution, all children in a class may be set to work at the same problem simultaneously, and each child may be made to feel responsible for finding out something for himself. Each child is free to move, discuss, question. The pupil is induced to ask many questions, and to answer such questions as far as possible, himself. A burning desire is created in the pupils to seek, find and not yield. Self-observation and experimentation are the procedures pupils use. Pupils are guided to observe facts correctly, to systematize the knowledge learnt and to arrive at generalisations—all through their own efforts. The teacher may also ask questions to keep the pupils on the track and to make them active mentally and arouse their curiosity. Once the desire to learn is created, the pupils will surely learn.

**Teacher's role in the method**

Teacher's role in all the new and progressive methods of teaching is not an easy one. More so in the Heuristic method. The teacher must be a treasure-house of knowledge and information, and yet give minimum possible help to the pupils—only that much help which will not mar the spirit of Heuristic method. He should be a good guide, giving that amount of guidance rightly needed by the pupils. He must be adept in the art of questioning. He should be sympathetic and courteous to be able to put the children at ease. The teacher should be capable enough to plan and devise problems for investigation by pupils, according to their age, interest and ability. He should be capable of intelligent supervision and to train the pupils in a way that he himself becomes 'dispensable' in the words of Adams.

### Heuristic method and the curriculum

The Heuristic method is not only useful in the teaching of science, but can be used with effect in all other subjects like mathematics, physics, chemistry and naturestudy. As the method is ultimately reduced to a Heuristic attitude or scientific attitude, there can be no difficulty of applying this very attitude in almost all subjects of the school curriculum. For instance:

1. In language—pupils may collect a number of examples of a rule in grammar and then state the rule for themselves.
2. In science—the pupils will perform the experiment and find out the results for themselves.
3. In history—the student may examine the sources and then compile an account of a historical event.
4. In geography—the students may observe the phenomena of days and nights—their duration at different times in the season and formulate general principles.
5. In all other subjects where rules have to be established, they have to be further applied—or where inductive-deductive approach has to be followed—the method can be used.

### Merits of the method

The method has so many merits to commend it:

1. *The method helps in developing a scientific attitude of mind and spirit of investigation and experiment.* With the result, that whatever the child learns, is more lasting and permanent.
2. *Habits of industry and hardwork are instilled both in the teachers as well as the pupils.* Both have to read extra books to obtain more information.
3. *The process of self-education encourages self-reliance, self-confidence and self-activity in the pupils.* When the pupils discover facts themselves, they feel a lot of pleasure. This gives to the pupils a great incentive for further work.

4. *Knowledge is gained through experience in its proper context.* Such knowledge does not tax memory. Dullness and boredom which often characterize a classroom situation is no more here.
5. *The method helps in solving the problem of homework also.* The pupils have to think and work seriously in the class. Facts learnt, thus, are remembered by the pupils without any difficulty. The child is not required to memorize a great many facts at home.
6. Lastly, *the method provides scope for individual attention to be paid by the teacher and for closer contacts.* These contacts help in establishing cordial relations between the teacher and the taught. The pupils develop confidence; they do not hesitate to express themselves. Thus, they gain in ways more than one. Teachers gain because they understand their words better and thus can help cause learning.

**Limitations**

1. *Heuristic method, like other methods, is impracticable for constant use. It is uneconomical in time, and allows mistakes of method, of argument and of verification to continue too long unchecked and uncorrected.*
2. *The method is unsuitable for beginners*: In the early stages, students stand in need of enough guidance which, if not given, may greatly disappoint them and thus the child may develop a distaste for studies. With children who cannot read independently, the method is unworkable.
3. *The method is time-consuming*: A single period of 40 minutes duration is too short a time to discover a fact in true Heuristic way. Thus, the method can be adopted well only if there are no restrictions of time-table, periods, syllabus and examinations. And, students should have the freedom to go at their own speed just as in Dalton Plan; for continuity in thoughts and actions is absolutely necessary for discovering and finding out facts.
4. *The method is too technical and scientific to be handled by an average teacher*: The method expects of the teacher great efficiency and hard work, experience and training. To guide the pupils and to enable them to find facts for themselves is not an easy task. In the hands of an unskilled teacher, the method is in danger of being reduced to a mere questioning-answering technique. Again, if the teacher is impatient of the progress of the pupils, he may tell too much to accelerate the progress of the lesson.
5. *In this method, it is the process of investigation and thinking which is important and many activities and trials have to be*

*undertaken to reach a conclusion.* There is the danger that the teacher, in an attempt to speed up the conclusions, may tell too much, thus defeating the very purpose of the method.

6. *It requires great skill and ingenuity to perpare interests—graduated problems and exercises.*

### Summary

1. The aim of this method is to promote creativeness and "learning by discovery." The method is specially useful in science projects.
2. The method helps in the expression of personal interests.
3. The teacher retreats in the background and, thereby, forces the student to judge and plan for himself. Originality and individual differences can blossom as never before.
4. The method, like other methods, is impracticable for constant use; it is uneconomical in time, and it allows mistakes of method, of argument and of verification to continue too long unchecked and uncorrected. The method is not at all suitable for beginners. It is time-consuming.

### Questions and Problems

1. Discuss the value of the Heuristic method of teaching.
2. What do you understand by the Heuristic method? What is its psychological basis? For what types of lessons is this method suitable? Give examples. What is the position of the teacher in this method?

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# ACTIVITY AND PLAYWAY METHODS

*Importance of activity and playway methods—Different types of activities—Playway and soft pedagogy—Playway and progressive methods of education—Playway method and school curriculum—Advantages—Summary—Questions and Problems—Bibliography.*

**Importance of activity and Playway methods**

The modern school is an activity school which emphasises the creative aspect of experience. It is recognised these days that directed activities give reality to learning and effective teaching uses all available sources. Activities are meant to provide varied experience to the pupil to facilitate the acquisition of knowledge, experience, skill and attitudes.

What is an activity? Anything which is carried out with a purpose in a social environment involving physical and mental action. Such activities help in the establishment of stimulating environment for creative expression.

There is no doubt about this fact that children enjoy wholesome living in stimulating environment where desirable attitudes, interests and skills are formed. The child builds self-confidence and develops understanding through work and play in the group.

Children are workers. They are deeply interested and penetrating observers of many types of work. They watch work processes in the home and in the community with a high degree of inquiring attention. Many of their worthwhile observations of work will find creative expression through talk, dramatic play, action on the playfield and in the learning laboratory. Through group excursions into community, children may have many opportunities to learn more about workers and natural resources. Such experiences should develop interests, enrich vocabularies, and provide stimulus to reading.

Teacher should furnish for children rich and purposeful learning experiences. These experiences challenge aspirations to fuller understanding, wider participation and greater growth. Teachers should learn how to develop happy relationships with pupils both at work and play.

Experience curriculum, fosters creative expression in learners. Children have varied opportunities to become co-operative and socially creative individuals. Creative expression is the expanding outward expression of intense inner emotions and challenging ideas. A rich environment is a potent factor in aiding children to realise their creative potentialities with the teacher as part of the environment. The climate must be democratic, unhurried and informal, charged with a good measure of sympathetic understanding. The imagination of children may be stimulated in various ways as they explore their own daily living and their world environment.

**Different types of activities**

Activities can be of three types:

(1) Exploratory—Knowledge getting
(2) Constructive—Experience getting
(3) Expressional—Presentation

Activities will vary according to the age group of the pupils. In the elementary school, at the Kindergarten stage, activities like singing, dramatizing, listening, observing, planning, collecting, talking, experimenting and constructing are useful. The variety of activities grows as children progress in the elementary programme. This may include: painting, drawing, designing, wood carving, writing, composing, dancing, interviewing, acting, reading, map-making and graph-making, field trips, gardening and camping.

It is not always necessary that activity should only be motor or manipulative—it can also be mental. Knowledge-getting activities occupy a prominent place. We try to make our stand clearer by giving an exampie.

Suppose we start the first topic in the social studies syllabus—Living in the community—and under this heading we take up agriculture and industry.

A. *Knowledge-getting activities*

(i) Here a group of pupils may be asked to make a study of the various sources of food articles consumed at home by questioning parents, merchants etc.; by consulting labels on the foods. The data may be compiled and interpreted by the group.

(ii) A committee of pupils may undertake to find out, in a rural area, how many families have members who work also in the city or town for a part of the time. In a city, it may be enquired how many people in the local community have come from rural areas and why they have come. With the teacher's help, rough estimates of probable experiences can be made.

B. *Experience-getting activities*

Excursion to an industrial and agricultural area can be had.

C. *Presentation*

A debate can be arranged on the topic 'In the opinion of the house, mechanised agriculture is the only way of economic uplift in the Panjab.'

Maps showing the distribution of, 1. Agriculture crops, 2. Major industries, 3. Outstanding and localised cottage industries in the Panjab can be drawn.

Charts showing (a) the classification of industries on the basis of nature of goods produced, (b) flow of raw materials, labour and power to a few major industries can be made.

Graphs showing the number of industrial labourers in the Panjab from 1947 to 1962 etc., can be prepared.

Practical and productive work can help in the better understanding of almost every subject. In geography, it may take the form of drawing maps, making models, illustrations, organising excursions, keeping weather records, constructing in appropriate materials scenes from the life of different regions of the world, etc. In history, in addition to the preparation of suitable illustrations of the type mentioned above, they may prepare and stage historical plays—making the costumes, the stage effects, fixing the lights, etc., themselves, or co-operatively study local history, or set up a small history museum and, in fact, take up any projects that will bring history to life. In connection with the study of languages—particularly the mother-tongue—they may undertake to write small booklets on subjects of special interest to them. The collection of material from relevant sources—its writing, editing, the binding of the booklets attractively—will all form part of a joyous project. Illustrated charts about great writers may be prepared—containing their pictures, short notes on their life and works and brief appropriate questions in prose or poetry from their writings—or they may possibly attempt translations of some easy books and articles in English with the object of providing rich reading material for their fellow students in the library.

Taking in view these three types of activities, some of the activities are suggested as under:

1. Local survey and excursions.
2. Debates, discussions, dialogues and symposiums.
3. Hobbies.
4. Dramatization.
5. Mock parliaments and mock-local body elections.
6. Clubs and societies.
7. Projects.
8. Competitions.
9. Recreational and cultural programmes.

10. Social service squads.
11. Student-self Government.
12. Camping.
13. Writing of community books in games etc.

In modern education, creative activities are occupying a prominent place in the school programme. Creative experiences and social activities are breaking away from the other approaches and exploring the new avenues of learning. This emerging pattern for teaching, requires that teachers play a more vital role. The creation of a stimulating atmosphere for the learner, both in the learning laboratory and in the community is essential for an experience approach to function. Education for children should be rich enough to meet all needs in a way that will contribute to society.

## Playway

### *Significance of play*

Play is said to be the language of the child. What the child lacks in verbal facility, he makes up through using his total body in expressing his feelings. Play affords a safer release of physical and mental energy, relieves emotional tension and to the trained observer, provides valuable diagnostic evidence which reveals the child's needs, thus making them, at least theoretically, and to some extent, in practice, possible to fulfil.

Play facilitates and encourages sensory and perceptual experience and within the limits of individual endowment, leads to the apprehension of the manipulative and constructive possibilities of both animate and inanimate objects.

The meaning of play has significance for the child. Through play he enacts many roles of the adults of his world as he sees them; he casts himself in those roles with which he seeks identification. The child's choice for play is selective and carries emotional components. The emotion may be a positive one of love or a negative one of fear or anger. The child, who assumes the role of the doctor, administering shots may be reducing the fear he feels, as the doctor sticks the needle in him, he may be assuming the role of the one who wishes to imitate or he may be passing on his resentment about being hurt to someone he wishes to hurt. Child is learning while playing.

"Play," in the words of Froebel, "is the highest phase of child development—of human development.........Play is the purest, most spiritual activity of man at this stage, and at the same time, typical of human life as a whole—of the inner hidden natural life in man and all things. It gives, therefore, joy, freedom, contentment, inner and outer rest, peace with the world. It holds the source of all that is good."

Thus, if play is capitalised in a proper manner, we can help the child to release through play—a natural activity of the child—his tensions, frustrations and fears as well as his joys and hopes. This can only be done if play activity is purposeful and directed. Without rational, conscious guidance, childish activity degenerates into aimless play instead of preparing for future tasks.

### *The Playway in education*

Play being the natural need of the child, Caldwell Cook is the first person, who advocated "way of play" for educating the child. He said, "...The core of my faith is that the only work worth doing is play; by play I mean doing anything with one's heart in it." He taught Shakespearean plays by acting from the text. Difficult passages were never analysed or explained. He criticised "those teachers who insist upon a careful and often prolonged study of all passages which present any natural difficulty." Caldwell Cook believed that proficiency and learning come not from reading and listening but from actions, from doing and from experience, "that good work is more often the result of spontaneous effort, and free interest than of compulsion and forced application." He regarded play as a means of training individuals as individuals and a wounderful technique of making school education interesting, and practical. He asserted, "only that child learns best who learns with interest and with a purpose, and sees significance in what he does." Thus Caldwell Cook introduced a new *way* in education—popularly known as Playway.

### *Underlying principles*

The Playway method is based on the following principles:

(i) Learning process to be conducted through *playful activities* because they are soothing, purifying and interesting.

(ii) Learning should take place in an atmosphere of freedom without any restraints.

(iii) Method of imparting should be informal and natural to suit the interests and needs of children.

(iv) Teacher's attitude should be such as to encourage free expression on the part of the pupils. Enough opportunities should be provided to children for expression.

(v) Children should fully enjoy the learning process. They should be active participants in it and responsible for their own progress and development.

### **Playway and soft pedagogy**

Emphasis on play has evoked a lot of criticism of his method. They say that emphasis on play means absence of serious work and that education is a tough process where drudgery is a natural part of it.

But it must be remembered that play has been advocated only as a 'way' of teaching. it does not mean that play will take the place of work and thus eliminate the importance of work. On the other hand, it is an attempt to do the difficult and boring tasks which have to be done in an interesting and joyous way. Griffith has pointed out, "Play is the child's characteristic mode of behaviour and any system of education which hampers this natural direction for the expanding of energy endangers the health—mental and physical of the child." In the words of Smith and Harrison also "Play is an all-absorbing activity in which initiative, forethought, control and skill can be exercised in full measure." If this is true, playway can, in no way, be taken as soft pedagogy. Playway is not at all an easy way. On the other hand, the way of teaching through play is strenuous. It requires a lot of careful planning and very thoughtful execution. The success of playway depends upon the hard labour put in by the teacher. The use of playway can, in no way, be taken as the line of least resistance to which a teacher can succumb but it is a wholehearted application to an arduous task of facilitating the learning process in a natural and interesting manner. Playway, thus, does not lead to soft-pedagogy. Difficult tasks will be there even now: the only thing which is advocated is let difficult things be taught in an interesting manner and let drudgery be made tolerable. The introduction of an element of interest will impart purpose to the work and a purposeful activity is useful and meaningful to the child.

To conclude, we can say that playway aims at making things interesting and meaningful and to do that is a difficult job and it is by no means soft pedagogy.

### Playway and progressive methods of education

A review of all the progressive methods will show that each one contains the principle of play.

1. *The Kindergarten method:* This method of educating children is based upon the play urge of children. Children are provided with an apparatus—called gifts. While playing with these gifts, children get the idea of shape, colour, number and weight etc. Froebel emphasises play, song and movement in his method. Children, in fact, learn while playing and singing in a happy atmosphere of kindergarten.

2. *The Montessori method*: The Montessori method is nothing but play method. Dr Montessori has given a specially designed didactic apparatus to enable the child to learn the elements of reading, writing and number. He plays with the apparatus and learns to correct himself. There is complete freedom for the child. The didactic material, like the stairs, bars. frames, cubes etc., teach the pupil to be active and learn important concepts while playing with these.

3. *The Project method:* A project based on the important principles of spontaneity, purpose, significance and interest contains play principles. Children take keen interest in the execution of a project. They learn to work as a group: they put in their heart and soul to achieve an objective they had set before themselves. Thus the play-spirit pervades the Project method also.

4. *The Dalton Plan:* This method gives freedom to the child to organise his time as a whole. There are no restrictions of the time-table periods, a piece of work begun can be finished as a whole and its completion need not be postponed till the next "hour" allocated to the subject comes round. Thus the pupils can obtain the joy of learning and the pleasure of being responsible for their study and progress.

5. *The Heuristic method:* This method steals a march over other methods for it places the child in the position of an original discoverer and an independent engineer. The child struggles to find out conclusions for an investigation which he chose voluntarily and happily.

6. *Winnetke plan, Gary system etc:* In these methods also the play principle is emphasised. School becomes the hub of activities in which children take keen interest.

7. *Basic Education:* In Basic Education, activity principle is in the forefront, crafts are purposeful and productive activities in which children take lot of interest. Hand and head are co-educated in a rational manner. The organisation of basic school is purely democratic. Children are the active participants in all the activities of the school. They learn to shoulder responsibilities in a playway spirit.

8. *Play principles and general school life:* We see a wide application of play principle to almost all aspects in a modern school. Hard problems of discipline and school administaration are being interpreted in terms of play. Schools are divided into houses. Self-government is introduced to enable the pupils to share in the administration. Growing emphasis on co-curricular activities like scouting, guiding, N.C.C. and A.C.C., school excursions, games and athletics, are all efforts to introduce play principle in school.

### Playway method and school curriculum

Playway method can be utilised in the teaching of various subjects of the school curriculum to make them lively and interesting.

*Languages:* Playway method can be utilised for teaching languages in a number of ways e.g., dramatisation of interesting anecdotes and plays, debates, discussions, speeches, spelling games, story games.

*Social Studies:* A number of playway devices can be used for teaching social studies e.g., dramatics, pageants and tableau, charts, models, philately, pictures, etc. Some projects like our food, means of mmunication, post office, may be taken up.

*Mathematics:* For teaching numbers and tables, a number of games can be used—counting with the help of beads, sticks, etc. We can impart knowledge regarding accounts by managing a bank, a post office, a shop, etc.

**Advantages**

The application of play principle is a great force in education. The major advantages may be given as under:

(i) *Play is a wonderful motivator, because it is interesting.* Even dull and difficult tasks become tolerable with the application of play prininciple.

(ii) *Work wedded to joy is work at its best.* The harmony of work and play, of freedom and restraint paves the way for the best of education. The child is not compelled to learn but learns voluntarily.

(iii) *Play provides training in self-discipline and self-advancement through self-education.*

(iv) *The harmony of work and play keeps the child fully absorbed in work.* The curriculum becomes interesting. Drudgery becomes tolerable.

(v) *Playway is the best 'way' of learning.* Whereas the adult learns through "concentration of mind" on essentials, choosing merely those which are useful, rejecting the rest as undesirable because they want the shortest cut to success, children learn in the nature's way, with all the senses fully active and eager, receiving the perpetual stream of ideas which come from the heart of nature, gathering facts and knowledge by such scattering of mental energy through unexpected surprises with their ever alert attention from nature and life.

### Summary

1. Activity is a good medium of education—Three types of activities may be used: exploratory—knowledge-getting, constructive—experience-getting, expressional—presentation. Activities can be used in all subjects to reinforce them.
2. Play is a very important urge of children. It can be capitalised for education. The use of playway cannot be taken as the line of least resistance to which a teacher can succumb. It is a very tough way to plan and execute. All the progressive methods contain the principle of play. Playway can be used in all subjects with effect.
3. Play is a wonderful motivator. Work wedded to joy is work at its best. Play provides training in self-discipline and self-advancement. Harmony of work and play keeps the child fully absorbed in work. Playway is the best way of learning.

## Questions and Problems

1. What is an activity? Discuss the importance of activity in education. Name the different types of activities you would use in Geography.
2. Describe a constructive activity which might be utilised for VI grade. Identify the specific educational values of such an activity and indicate the social studies objectives such an activity could help children attain.
3. Select a topic in mathematics which might be used for a unit in a grade in which you have special interest. Indicate suitable expressional activities to be included in the unit.
4. What do you understand by Playway in teaching? Bring out the significance of Playway in education. Suggest Playway devices which you can use in the teaching of your favourite subject.
5. Give examples showing the importance of the application of Playway in our new educational methods.
6. The term 'Playway' has been used to differentiate certain methods of teaching. What are the chief points in such methods and what value do you put on them?
7 Describe the main features of Playway as a method employed in teaching at the elementary level.
8. "Whatever you want a child to do heartily must be contrived and conducted as play" (Caldwell Cook). Elucidate this statement with reference to Playway method of teaching. Select any topic in English and suggest the games through which this topic may be taught.

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# BASIC EDUCATION

*A retrospect—Main features of the scheme—Potentialities of Basic Education—Basic Scheme in action—Weaknesses—Suggestions for improvement—Summary—Questions and Problems—Bibliography.*

"By education I mean an all-round drawing out of the best in child and man—body, mind and spirit." —Mahatma Gandhi

"Nai Talim is life-giving, whereas education given by the foreign government was necessarily life-destroying. Basic Education covers the whole life. Experience has shown that it has great possibilities and begins with the embryo and ends with life itself. Except for capital expenditure, it costs nothing. The teachers earn what they take. It stands for the art of life; therefore, both the teachers and the pupils have to produce in the very act of teaching and learning." —Mahatma Gandhi

"Wardha scheme of Basic Education is one of the most interesting and promising developments in Indian education. . . But Basic Education has not been a success, not because it has been tried and failed, but because it has not yet been fairly tried." —Prof. Castle

Basic Education is the most practical and least wasteful system of education for a country like India. Gandhiji realised the inadequacy of prevailing educational practices for the rebuilding of his country. Like Pestalozzi, he wanted to ameliorate the lot of masses by teaching them a craft, and in consonance with John Dewey, he made education more realistic by imparting knowledge through crafts. A 'Karmayogi' as he was, Gandhiji followed the principle of practice preceding theory'. He realised it fully well that crores of rupees for educating crores of children, cannot be found. He introduced a philosophy in education—learning and earning simultaneously.

This scheme of education is based on the philosophy of naturalism. The whole programme of education is a programme of real unfoldment, all the time bringing out something that is within the child by removing all the outward inhibitions, and external obstacles. By education, he meant "an all-round drawing out of the best in child and man—body, mind and spirit."

Gandhiji's philosophy of education is set in Indian background. He rediscovered the old truths, reinterpreted them and applied them on a nationwide scale. His educational philosophy springs out of his belief in truth, ahimsa, equality and non-exploitation. He was fully convinced that the machination was responsible for incessant rivalries, subjugation and exploitation leading to a disorganised human life. He encouraged handicrafts, so that the people should work in complete unison for the good of all in neighbourliness and peace. The entire scheme of education advocated by Mahatmaji is rooted in non-violence, respect for the individual and love of freedom for the lowest. Gandhiji had a firm faith that freedom, democracy and peace cannot be truly established unless improvements in the economic realm are introduced. Thus, his scheme of education was a part of his politico-socio-economic programme of uplifting the lowly and the lost.

In short, his scheme of education is naturalistic in its setting, idealistic in its aims and pragmatistic in methods. "The real greatness of Gandhiji, as an educational philosopher, consists in the fact that the dominant tendencies of naturalism, idealism and pragmatism are not separate and independent in his philosophy, but they fuse into a unity—giving rise to the theory of education which would suit the needs of the day and satisfy the loftiest aspirations of human soul."

The scheme of Basic Education does not stand for a mere technique, still less for any special primary school technique. It stands for a new spirit and approach to education, which will make our schools, in Gandhiji's words, 'spearheads of a silent social revolution, nurseries of a truly free democracy'.

### A retrospect

Gandhiji placed the concept of Basic Education before the country in 1937. "By education I mean an all round drawing out of the best in child and man—body, mind and spirit," he wrote in an article in *Harijan* in July that year and that was the beginning of the greatest experiments in the theory and practice of education in our country. He put forth ideas which had the experience of years of solid work with the masses behind them and could form the basis of a good system of education.

A conference of educationists from the various provinces was called at Wardha shortly after Gandhiji's articles on the subject. A committee, with Dr Zakir Hussain as Chairman, was appointed to prepare a tentative scheme and detailed syllabus. Its main recommendations were the following:

(1) Free and compulsory education should be given to all children for a period of seven years;

(2) The medium of instruction should be the mother-tongue;

(3) The process of education should be centred round some form of manual, productive work in the shape of a craft; and

(4) This education should be self-supporting to some extent.

The Central Advisory Board of Education appointed a committee under the chairmanship of Shri B.G. Kher to examine its possibilities. This committee emphasised that the scheme was one of education and not of production.

After this another committee was appointed under the same chairman to co-ordinate the Basic system with higher education and the recommendations of both these committees were accepted by the Central Advisory Board of Education and incorporated in the report on Post-War Educational Development in India, published in 1944. This report was approved by the Government of India and the State Governments. This report differed from the Wardha scheme as it did not expect craftwork in basic schools to pay for a substantial portion of the cost of education.

### Main features of the scheme

1. Free and compulsory education from 6 to 14 years of age in two stages—a *junior* stage covering the first five and a *senior* covering the remaining three years.

2. The medium of instruction to be the mother-tongue.

3. The process of education should centre round some form of manual, productive work, and all teaching is to be, as far as possible integrally related to it. The central handicraft is to be chosen according to the environment of the child. The social and physical environment of the pupils may also be used for purposes of correlation.

4. The sales of finished products should be able to help the school to some extent. This aspect, however, is not to be over-stressed.

5. The evaluation of students is to be only internal and on the basis of day-to-day work of pupils. No external examinations need be held.

6. Text-books to be avoided as far as possible.

7. Cleanliness, health, citizenship, work and worship, play and recreation to be given proper emphasis.

8. The various subjects to be taught not as different subjects but as related processes for the development of a harmonious and balanced personality.

### Significance of the word 'Basic'

Basic Education has been styled as such because of the following reasons:

(a) It is 'basic' in the sense that it is based on Indian culture.

(b) It is 'basic' in the sense that it should find natural points of correlation with important human activities and interests and should extend into the whole content of curriculum.

(c) It is 'basic' because it lays down the minimum educational standards which every Indian child is entitled to receive without any difference of caste, creed or colour.

(d) It is 'basic' because it carries first in time i.e., it is the primary period of one's education.

(e) It is 'basic' because it is imparted through the basic necessities of life—food, shelter and clothing.

(f) It is 'basic' because education is to be linked with the basic urge i.e., urge for creative work.

### Potentialities of basic education

The basic scheme of education, although has not made headway so far, has vast potentialities as a scheme of education.

1. *A new philosophy of education*

Basic education, rightly understood, does not stand for a mere technique, still less, for any special primary school technique. It stands for a new spirit and approach to education which will make our schools, in Gandhiji's words, "spearheads of a silent social revolution, nurseries of a truly free democracy......It will provide a healthy and moral basis between the city and the village and thus go a long way towards eradicating some of the worst evils of the present social insecurity and poisoned relationship between the classes." This philosophy of education speaks of the needs of India in at least four ways:

(a) Children learn facts best in a social context. The closer the relationship to their daily lives, the better the learning situation. 'What could be closer than the need for food, shelter and clothing?—Thus spoke the Mahatma.

(b) Democracy is a process, a "doing." Work-centred education teaches democracy by actions. Responsibility for cleanliness, for preparing and serving food, for participation in governing themselves, for contributing to the well-being of their community, creates in children respect for work and the worker.

(c) While identification with work and the worker brings respect and wisdom, equally so, it releases the power of the "we group" for reciprocal learning. While we learn from those working for us, we also teach in the scientific way known to educational psychologists.

(d) Class and caste lines, both oriental and occidental, cannot survive in a society whose education is founded upon all children, sharing in some way in useful and necessary labour. Thus introduction of practical work will tend to break down the existing barriers of prejudice between manual and intellectual workers, harmful alike for both. It will also cultivate in the only possible way, a true sense of the dignity of labour and of human solidarity. Gandhiji's educational philosophy, springing out of his belief in truth, ahimsa, equality and non-exploitation, introduces non-violence in the field of education.

Thus Basic Education has been specially, 'tailored' to meet the requirements of primary education in our country.

### 2. *A new method of teaching*

Gandhiji made the craftwork as the main method of teaching and believed that the scientific study of craft, apart from the mechanical, would lead the learner into various channels of learning. In his own words, "The principal idea is to impart the whole education of the body, and the mind and the soul through the handicraft that is taught to the children. You have to draw out all that is in the child through teaching all the processes of the handicraft and all your lessons in history, geography and arithmetic will be correlated to the craft." "We have chosen three centres, intrinsically interconnected. as the foci for the curriculum i.e., the physical environment, the social environment and craftwork, which is their natural meeting points since it utilizes the resources of the former for the purposes of the latter."[1] Education through these natural points of correlation can easily impart co-ordination of will, muscle and concentration of hand and intellect and these can mould the entire personality of the child. Correlation, in fact, is a very refreshing thing. "When we take a lump of cotton, clear it of seeds and clean it of dirt, thrash it and card it, spin the yarn and weave the cloth, a whole range of agriculture and industry, of history and geography, of economics and politics is capable of being taught round the craft in hand." Similarly, natural and social environment are a great human laboratory through which we can teach the curricula incidentally and in proper context. Thus in Basic Education an attempt is made to bring the different purposes of child, school, and community in a line. Instead of single threads, woven pieces are taken out. The child starts with the real life problems, and he soon finds that he must know something about the threads. Each thread, however, instead of being isolated and comparatively meaningless, is now seen to fit in as warp or woof to form a whole, which though complex, is yet simple to the child. It is familiar and it has formed part of his vital experience. There is no longer any danger of a single thread getting lost, or it developing into a tangle.

This type of education, correlated with a basic craft, social and physical environment, saves the pupil from the tyranny of words. Thinking, seeing and doing are co-educated. No wonder, lasting results are achieved. At the same time, the efficiency secured by the child can be measured, encouraged and speeded up. And yet some return in the form of prepared products is there.

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[1] *Educational Reconstruction*, Hindustani Talimi Sangh, Sevagram, Wardha, pp. 125-26.

Gandhji laid emphasis on imparting knowledge through senses. He says, the hand should handle tools before it draws or traces the writing. The eyes should read the pictures of letters and words as they come to know other things and the ears should catch the names and meanings of things and sentences.

### 3. *Proper emphasis on art and craft*

In Basic Education, a child at the outset, is initiated into and made aware of the world of beauty that surrounds. It is an admitted fact that there is a sense of joy and triumph after one creates a work of art. When a thing is created, the thinking mind and working hand are used, the child can learn a multitude of other matters which no lips of man can ever teach him.

### 4. *Self-supporting education*

Gandhiji emphasised that the child in a basic school should learn as well as earn. He should not be a mere consumer but producer as well. It does not mean that basic schools will be turned into factories or vocational institutions—but it is simple logic that when raw material is used, and the process of production followed scientifically, some useful products will be there. Self-sufficiency is not an end but only a means. Education will have an economic bias in keeping with the social environments.

### 5. *Education for good citizenship*

The Basic Education aims at giving the citizens of the future a keen sense of personal warmth, dignity and efficiency and strengthening in them the desire for self-improvement and social service in a co-operative community. This education is intended to build attitudes, appreciation, understanding and skills which will nourish our democracy. It helps the children to become confident, self-reliant and self-respecting. It also attempts to develop mutual understanding, habits of co-operative and mutually helpful living by introducing a common productive activity in the schools. The labour and the craft principle supplies the greatest impetus to democratic self-government in schools. It also provides opportunity for the cultivation of political and civic virtues under the expert leadership of the teacher.

### 6. *Appreciation of the dignity of labour*

Bookish education of the past produced a tendency to look down upon manual labour. Basic scheme aims to do away with this feeling. This education will teach the children to do manual work and to respect the manual worker.

## Basic scheme in action

Basic scheme, as discussed earlier, envisages reform in the teaching methodology as well as the contents of education. The following are the contents of the Basic scheme of education:

- (i) Craft.
  - (a) Spinning and weaving.
  - (b) Gardening leading to agriculture.
  - (c) Book-craft including paper and cardboard work leading to wood and metal work.
  - (d) Leather work.
  - (e) Clay and pottery.
  - (f) Fisheries.
  - (g) Home craft.
- (ii) Mother-tongue.
- (iii) Social studies.
- (iv) Mathematics.
- (v) General Science.
- (vi) Art including drawing, music, aesthetics generally.
- (vii) Hindi.
- (viii) Games and physical activities.

An approximate amount of time to be devoted to the various subjects in a basic school is as under:

| Subject | Grades | Time |
|---|---|---|
| Craft work | Grades I to III | 2 hours a day |
| | Grades IV to V | 2½ hours a day |
| | Grades VI to VIII | 3 hours a day |
| Mother-tongue | | 40 minutes a day |
| Social Studies and General Science | | 1 hour a day |
| Mathematics | | 20 minutes a day |
| Art | | 40 minutes a day |
| Physical Activities | | 20 minutes a day |

The amount of time shown above need not be daily allotted to the respective subject but this average should be aimed at for the week as a whole. The time shown for the craft includes the actual operations as well as planning of the craft by the teachers and the pupils, the time spent on correlation and other elements which may be brought in the craft for educational purposes.

Craftwork should not generally be taken at one stretch as that will be quite tiring but the minimum time devoted at one stretch should not be less than 30 minutes.

Organised games may be arranged either within or out of school hours according to circumstances in addition to the time provided for physical activities. It is recommended that the physical training should generally be in the early hours of the school.

**Drawbacks**

The discussion so far shows that Basic Education is a very good system of education so far as its theory and philosophy go. But the practice of Basic Education tells a different tale. While the theory is pretty sound, the good in the system has evaded translation into concrete achievement. Basic schools suffer with a sense of inferiority. Practice is lagging behind theory so much that the scheme is being characterised as a "fraud and a caricature." Some are enumerated:

1. *The teacher neither gets expert guidance, nor proper encouragement*: Inspiration in education always comes from above. But those at the top are either ignorant about Basic Education or have no faith at all in the idea. The teacher gets no guidance or encouragement from these quarters and he, very soon, relapses into inefficiency and ineffectiveness.

2. *Teacher training inadequate and teachers not well rewarded:* Basic Education demands a skilled and imaginative teacher who can relate immediate experiences and interests to larger ideas and generalizations. It is, at this point, that the Achilles heel of Basic Education is to be found. Correlation, about which there seems to be a lot of talk in Basic Education, is rather a rough tool in the hands of an ordinary teacher. Correlation, "learning while earning" is a sound principle of education but because of social inertia of ineffectual teacher training and rigidity of the school situation, the teachers are utterly unable to put them into practice with children. At the same time, with all the expectations from the teacher, he is not well-paid and this makes the matter still worse.

3. *Basic Education has turned out to be a system of education for the lower classes:* Gandhiji wanted to bring a silent social revolution and a juster social order through his scheme of education But when we ask ourselves how far we have progressed through Basic Education towards the 'just social order', we must admit that not only are we far from it but we seem to be moving in the opposite direction. A class system is becoming more and more strongly entrenched in the educational arrangement in the country and Basic Education is gradually tending to become fixed in the minds of the Indian people and the education department as the education for the poorest and the lowest classes. "Two systems of education are functioning side by side in the field of national education—one for the masses and the other for the middle and upper classes." As a result of this unfortunate division in the educational system in the country, basic schools have come to be looked upon with suspicion by the common people as

part of a deliberate attempt by the privileged classes to maintain their own position.

4. *Teaching through a craft is only a slogan, a fiction which is practised on ceremonial occasions for the benefit of visitors:* Correlation is practised not as a regular technique of teaching. Even when practised, it is forced and unnatural and most of the times, craft is taught in addition to the curricula taught in the traditional school. Principles of genuine correlation, though pedagogically sound yet many sins are committed in their practice. Teaching through crafts is just an eye-wash.

5. *Craft-work is as popular with teachers as note dictation is with university professors. It affords a good opportunity for idling:* In a Basic school, literacy and knowledge of subject-matter are considered to be of secondary importance. Only two-thirds or half the normal time, is given to academic education, the rest is taken up by crafts. Moreover, since on the time-table, academic subjects generally come after the craftwork, mostly agriculture, students are sometimes too tired to take to academic work very kindly. Moreover, it has been found that the claim to teaching through a craft is grossly exaggerated. Students spend the time in craftwork without acquiring much dexterity. Literacy and subject-matter are considered to be of secondary importance.

6. *Basic Education is activity-centred in the symbolic and verbal sense only:* A very important function of craftwork is the development of creativity. A craft, to be really educative, must promote a high degree of imaginative activity leading to the creation of original forms of craftwork. Judged by this criterion, several forms of craft activity, prescribed and followed in our basic schools, will be found to be inadequate as worthwhile media of education. In the words of Dr Pires, "In my opinion, there is too much of routine activity in the craft classes in our basic schools with little or no accent on creativity; and the preponderant economic motive is largely responsible for the routine type of work required of the pupils. It is not uncommon to find all the pupils in a wood-work class engaged in the production of the same type of articles, the specification of which have been given by the teacher......Neither the pupils nor the teachers are making any use of the creative imagination with which they have been endowed by nature."

7. *Art has not been recognised as an integral part of education:* But it will have to be admitted that a large part of man can never find its expression through crafts only. It must, therefore, seek for its other languages—lines and colours, sounds and movements.

8. *Basic schools are indifferently run and do not turn out either good academically trained students or well-versed in useful crafts.*

9. *Certain children can learn from concepts and ideas using them as tools:* For them mere one piece of activity, in any craft by way of play or observation, builds up a plinth for the construction of the structure of knowledge. For such children it is not necessary that we should teach them via craft. Children, whose tools can be words and ideas, need not be bound down to the niceties and the philosophy of crafts.

10. *The programme of Basic Education has not only been degraded in the prestige in national life, it has also been reduced in its scope:* The originator had conceived it as a programme of integrated education for seven years. This has gradually been reduced in many states to a course of four to five years only. This has meant wastage in money, energy and educational effort and has failed to achieve any results.

11. *The students from basic schools are denied parity with students from other schools*: All doors to institutions of higher education at the secondary or university level and to technical and professional education are closed to students of basic and post-basic schools. Post-basic education is not recognised as an alternative form of secondary education. With the result, the confidence of the general public in Basic Education has been undermined, parents have very good reasons to fear that if they send their children to basic schools, they are depriving them of opportunities of further education.

12. *Double-mindedness is weakness in the system:* So far it has not been made obvious whether this mode of teaching is designed to be an instructional technique or it solely aims at bringing about a sarvodaya revolution in our society. So far, both are being attempted with a pioneering zeal. This double-mindedness had led to tragic ineffectiveness. The two bullocks yoked are pulling apart.

13. *Basic Education is craft-centred—not child-centred*: The craft is chosen not with reference to the aptitude of the child as revealed by psychological tests and it is not turned into a tool for play but a means for earning money. The super-abundant energy of the child is not directed into numerous channels by a rich and varied scheme of play activities. The basic scheme takes no note of this playway in education and is, therefore, not child-centred. Productive work is aimed at which has its economic value.

14. *Too much effort is made to correlate subjects with the craft only, while correlation with the natural and social environment is very inadequate*: The research conducted by L.K. Oad and B.B. Chatterjee[1]

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[1] L.K. Oad and B.B. Chatterjee, "Achievement in Craft and Academic Subjects in Basic Schools," *The Educator*, Nagpur, April 1954, Vol. VIII, No. 2. p. 71.

shows, "The correlation between craft ability and intellective functions or personality development patterns is very low, if not altogether absent."

In addition to the weaknesses and bottlenecks mentioned above, there are certain misconceptions which are unnecessarily standing in the way of rapid spread of Basic Education.

One of the main misconceptions is that there are feelings among the people who feel Basic Education is a concept which in many ways runs counter to the policy of industrialization our country has accepted. They say that emphasis on crafts is out of place in a community which has its face turned towards developing its economy to the full.

In this connection, it needs to be remembered that Basic Education is not in any way in conflict with this policy of industrialization. Here an attempt is made not only to have 'thinking mind' but the 'thinking hand' as well. 'Thinking mind' plus 'thinking hand' can, without doubt, prove much more useful in an industrial society than only the 'thinking mind.' The semi-skilled workers turned out by basic schools can be converted into a big army of skilled workers later. Moreover, when an attempt is made to give craft or production orientation to education, the cause of industrialization is very well served. The introduction of crafts in the basic schools can help us in matching the requirements of industry to the capacities of a primary school child. In our craze for industrialization, we cannot afford to install factories in schools. Schools must be happy places humming wifh life and activities.

Moreover, cottage industries can safely exist side by side with the large scale industries.

There are some educationists who feel that if the principle of 'learning by doing' is introduced in our traditional curriculum, there will not be any need of introducing Basic Education. They recommend the introduction of Project method instead of Basic Education. They just do not want 'crafts in education.'

Now the point which needs to be understood is that Basic Education—a system and philosophy of education—is a great improvement upon the Project method which is only a method of teaching. It is not our purpose to produce finished articles so that huge profits may accrue but if children make certain things and they can be utilized by them or the school or even if sold and bring some money, where is the harm? We can expect some return positively when learning and teaching are satisfactory. Whatever craft or activity is introduced, it must be creative for reasons of educational if not economic; useful work brings knowledge to the active participant. Simple 'learning by doing' is not enough. As it may develop the intellect, it will neglect an important moral princlple viz. that human labour and material should never be used in a wasteful or unproductive way.

When everything has been said, now the question which awaits an early answer is—can we accept the present state of *disappointment* and frustration as inevitable. Gandhiji said, "There is no such word as frustration in the dictionary of Satyagraha. If we do not appear to have succeeded, the cause lies in ourselves. . . Frustration is born of our weakness and loss of faith." So the greatest need is of finding out the reasons for the failure in the implementation of this programme, the reasons for the lack of confidence of the general public and the difficulties experienced by teachers, supervisors and administrators in the working of basic schools, must be found out.

There is no sense in being 'allergic' to the word 'Basic Education' when it emphasizes certain very good principles of education. There might be certain limitations of even defects in this scheme. Those can be removed if the plan is sincerely implemented with all the zeal and enthusiasm. Elementary education is the backbone of a nation. It is necessary that this stage of education is given serious thinking and top priority in planning. In giving a new ideology a practical shape, what is required most of all is faith and a will to work. Let us dedicate ourselves afresh to this great cause and reaffirm the primacy of the ideals which stand for a sound system of primary education. Let us, through experimentation and research, make it so defect-free that it may serve as the staple food for a child of 6-14 of the high and low, rich and poor.

**Some suggestions for improvement**

1. *The people must be educated towards the recognition of the important function and place of work in the development of individuals and society.* Basic education will be able to achieve its objectives only when manual work is given its legitimate place in society and there is a nationwide genuine desire to organise our national life as a co-operative community of productive workers.

2. *There should be a variety of instructional systems prevailing in the country.* In our country where unity in diversity has been a national trial, many systems should be grown and nurtured. The multicoloured warp and woof will weave a glorious pattern. Let the pattern of Basic Education dovetail in the national fabric of secondary and higher education. In the secondary stage, multipurpose institutions can fit these craft-trained products of the basic stage and pass them on to polytechnics and rural institutes. Such culverts and causeways must be provided. The diversification of secondary school courses might also be explored. Once the facilities are available, it should be possible to remove a student from the craft he is learning the moment he reaches a fair degree of skill and put him on to something else. Nothing can be so deadening physically and mentally as the average routine of a craft.

3. *Status and working conditions of the teachers should be improved.* The environment of the teachers should be such that they may be able to work spontaneously and freely. It is the teachers status and personality which are essential for the successful reorientation of national education towards the basic pattern.

4. *Educationists feel that other activities such as camping, common mess, excursions, dramas, cleanliness of the school premises, daily bulletin committee and various other clubs, other than the craftwork, can instill dignity of labour and the spirit of co-operation in the children.* Class prejudices and class barriers can vanish not only through crafts but through other activities such as dramas, poetry, literature, universal dogmas of all religions and through the common celebration of days. Experience has shown that these activities other than the craftwork should be incorporated in the scheme to bring about a desired social order of Mahatmaji's ideals.

5. *If craft is to fulfil the requirements for which it occupies a place in the school—provision for as many different crafts as possible to cater to the individual abilities and interests of children must be made.* Moreover, a large measure of freedom for children to choose, plan, execute the kinds of craft projects on which they would like to work must be given.

6. *Labour and toil are not the whole of man's life.* Man must indeed work but if he intends to attain the peace of soul and happiness of life, he must also pray and meditate. A good scheme of education should incorporate the ways and means for the spiritual and material welfare of the citizens.

7. *Double-mindedness must end.* If it is expected to bring about a Sarvodaya change, then all economic, social and political forces must be oriented that way. Diversification is the law of growth. One type of education may be called sarvodayic and the other basic pedagogy. In the former the aim will be the building up of a Sarvodaya society and, in the latter, the universal application of that technique. The crafts for the former may be the ones in use, and for the latter elements of mechanical powers and machinery and variety of crafts.

8. *Craft work should be modernised.* Training in craft work should be related to community needs. Handicrafts taught under Basic Education should be replaced by realistic crafts of economic importance. Modern and industrial crafts like (i) wood work leading to furniture making, (ii) metal and low pressure welding, (iii) painting and decoration work, (iv) electricity, and radio repairs (v) leather and allied trades should find a place in urban areas.

In rural areas, crafts like repairs of agricultural tools and blacksmithy, masonry work, plumbing, tubewell and engine repairs, should find a place along with modern agriculture training. Masonry has a great potential as large masses of villagers who migrate to cities to work as labourers and masons are in great demand both in the cities and villages.

9. *Some of the features of Basic Education such as sanitation work, cultural programme, elementary craft work, student's self-government, extension work in the community etc., should be introduced 'simultaneously and without' delay into all traditional schools to give greater interest and social significance to their work and also to facilitate their eventual transformation into Basic Education.* The teachers of the existing primary and middle schools should be given preparatory training in these activities, in short, training camps to enble them to organise them efficiently and effectively.

After the experience of three plans, the planners dropped basic from their scheme in the fourth plan. The weaknesses were not spotted, no evaluation of the system conducted but suddenly the system was eliminated from the educational world. Favourable conditions were not tried; the trial was a reluctant and half-hearted attempt and the system was buried with the third five year plan. Schools relapsed to traditional forms both *de facto* and *de jure*.

### The views of Ishwarbhai Patel Committee

Ishwarbhai Patel committee, 1977, has recommended that the principles of Basic Education, as evolved by Mahatma Gandhi, and accepted in the Kothari Commission Report, with the stress on work education need to find a central place in the educational system. It has further recommended that socially useful productive work must be given a central place in the curriculum at all stages of school education and content of the academic subjects related to it, as far as possible.

### Summary

1. The scheme of Basic Education advocated by Mahatma Gandhi is naturalistic in its setting, idealistic in its aims and pragmatic in method. The scheme stands for a new spirit and approach to all education, which will make our schools 'spearheads of a silent social revolution, nurseries of a truly free democracy.'
2. The scheme advocates a new philosophy of education; a new method of teaching, emphasis on art craft, self-supporting education, education for citizenship, dignity of labour etc.
3. The scheme has certain weaknesses:
    - (i) The teacher neither gets expert guidance nor proper encouragement.
    - (ii) Teacher training is inadequate and teachers are not well rewarded.

(iii) Basic Education has turned out to be a system of education for the lower classes.

(iv) Teaching through a craft is only a slogan, a fiction which is practised on ceremonial occasions for the benefit of visitors.

(v) Craft-work is as popular with teachers as note dictation with a university professor. It affords a good opportunity for idling.

(vi) Basic Education is activity-centred in the symbolic and verbal sense only.

(vii) Art has not been recognised as an integral part of Basic Education.

(viii) Basic schools are indifferently run.

(ix) Certain children can learn even without being approached via concrete.

(x) The programme has not only been degraded in prestige in national life, it has also been reduced in its scope.

(xi) The students from basic schools are not treated at par with other students of schools.

(xii) Double- mindedness is another weakness of the scheme.

(xiii) Basic Education is craft-centred, not child-centred.

(xiv) Correlation with craft is over-emphasised, but, with other centres of correlation, it is inadequate.

4. These defects must be removed to enable the scheme to make headway.

### Questions and Problems

1. How far does Basic Education succeed in transforming our educational places from centres of theoretical, intellectual one-sidedness, into those of practical, human, many-sidedness, from places of individual self-seeking into those of social well-being, from places of mere acquisition of knowledge to those of its right use?

2. "One of the objectives of Basic Education is that it would work towards the building of a classless society." How far has this objective been achieved?

3. "The object of this new scheme is not primarily the production of craftsmen able to practise some craft mechanically, but rather the exploitation for educative purpose of the resources implicit in craft-work." Discuss.

4. Crafts must be integrated with school work, not merely mechanically, as is done today but scientifically, teaching the child the why and wherefore of every process. Is this ideal set before us by Gandhiji practicable for an average teacher? Discuss in detail.
5. "The human body is skill hungry and until that hunger is satisfied, it will be ill at ease, yearning for something it has not got and seeking its satisfaction in external excitements which exhaust its vitality and diminish its capacity for joy. Short of skill, the perfect health, even of body, is impossible." L.P. Jacks. In the light of this statement discuss the significance of craft education.
6. "Crafts in Basic Education should be self-supporting not for reasons economic but for reasons educational." Explain.
7. "Productive activity and creative urge would appear at first sight to be mutually opposed." How can the two be harmonised in Basic Education.
8. How would you justify the principle of self-sufficiency for elementary education in a welfare state of the socialistic pattern?
9. "Self-sufficiency is not a '*priori*' condition, but to me, it is the acid test......Nai Talim without the self-support basis would be like a lifeless body." Give in detail Gandhiji's views on the subject. Make a critical study of the place of self-sufficiency in Basic Education.
10. "Literacy of the whole personality" and "drawing out the best in the individual" are two aims of Basic Education. Elucidate.
11. The Zakir Hussain Committee recommended: "...all teaching should be carried on through concrete life situations relating to craft or to social and physical environment so that whatever the child learns becomes assimilated into his growing personality." Discuss the potentialities of three centres of correlation.
12. Gandhiji wanted that the student should be an all round person: student, worker, engineer, technician and research scientist at the same time. He should no longer be a mere consumer but also a producer. Discuss.
13. To what extent is Basic Education formative of character? How is it better than the traditional education in this respect?

14. Write a critical account of the basic scheme. Examine the reasons for and against its nationwide introduction.
15. To what extent do you believe that pragmatism is the core of the theory of Basic Scheme of Education?
16. What weaknesses have you noticed in the practice of Basic Education? Give some practical suggestions to remove them.
17. Discuss the bottlenecks in Basic Education. Give some suggestions to remove them.
18. "Self-sufficiency in education is desirable but not practicable." Discuss.
19. "Basic Education has turned the schools into factories, producing weavers, artisans and fails to produce best inventors and scientists." Comment.
20. "Psychological and pedagogical aspect of Basic Education has been emphasised superficially." Explain and clarify.
21. Is Basic Education a wrong process or the fault lies with the execution of the process?
22. "Basic education philosophy does not permit a rigid or routine unimaginative approach. Whether it is the curriculum, methodology, examination or whether it is the teacher-training or a question of the use of text-books or a productive craft, no stereo-typed dull approach helps. Even the administrative set-up needs to be in tune with the whole spirit." Discuss.
23. "Basic Education is a system of education and not a scheme of production." In the light of this remark discuss the implications of the concept of self-sufficiency in Basic Education.
24. What is the difference between teaching a craft and teaching through a craft? Explain fully the implication of each.

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# SOME CLASSROOM METHODS OF TEACHING

*Need for the right methods—Telling method—Lecture method—Discussion method—Demonstration method—Problem method—Assignment method—Supervised study—Summary—Questions and problems—Bibliography*

**Need for the Right Method**

The best of the curriculum and the most perfect syllabus remain dead unless quickened into life by the right methods of teaching. Method is the means of reaching pre-determined ends. It, in fact, forms the most important link in the total teaching learning chain which has on one hand the goals and purposes and, on the other, results and values.

All decisions regarding teaching procedures in different subjects should be governed by the objectives of teaching these subjects. For the achievement of comprehensive objectives of teaching different subjects, methods are needed which could expose the pupils to knowledge, and experiences helpful in the development of understanding, critical thinking, practical skills and interests to be developed through a particular subject.

There is no royal road to successful teaching. There are many roads—highways and by-ways, royal roads and narrow lanes, delightfull paths and rough ones which need to be tried for meeting particular needs and situations. The teacher should be able to use permutations and combinations of methods, devices and techniques to make teaching of different subjects interesting, vital and living.

Corresponding to the requirements of different subjects, there are different methods of teaching. Now, we shall discuss these methods which the teachers may use.

**Telling Method**

"Telling" according to James Michael Lee "is the pedagogical device whereby the teacher makes a brief oral presentation of some fact or concept of educational significances." It is a method often resorted to by teachers for supplying the students with information about events, incidents and simple facts.

Telling is particularly useful as a teaching device when:

(i) introducing new topics;

(ii) summarising work;

(iii) reviewing work;

(iv) supplementing information furnished by students and text-books;

(v) developing the work of the class;

(vi) giving illustrative talks;

(vii) giving inspirational talks; and

(viii) introducing important incidental information.

Telling, as a method, should be used when it is not possible to elicit the information for the students or to make them active participants in the learning process. Telling should be full of actions and made interesting by the use of catchy words and phrases and handy illustrations such as metaphors and similies.

Telling is an art which every teacher should know. He should have rich imagination, accurate and wide knowledge and a rich collection of facts, anecdotes and stories to enable him to use them when the situation demands.

**The lecture method**

The lecture is also a method of exposition. According to James Michael Lee, "The lecture is a pedagogical method whereby the teacher formally delivers a carefully planned expository address on some particular topic or problem." The method is particularly used in the secondary classes and above. It can be used:

1. *To motivate*: While starting the study of a new unit or topic, the teacher, can sometimes present the outstanding aspects effectively in a lecture. He can indicate some of the significant persons, events and problems and thus arouse the curiosity of the pupils.
2. *To clarify*: When, in the study of a unit, problem or topic the pupils are troubled by the same difficulty, the lecture can be given to save time. The situation may call for review for a new synthesis, for an interpretation or for the establishment of hitherto unrecognised associations. A few minutes' lecturing can help to clarify matters.

3. *To review*: Through lecture, the teacher can very well guide the pupils by summarising the main points of a chapter or unit and indicate some of the important and significant details.
4. *To expand contents:* Lecture is one of the best ways of presenting additional material. Pupils are interested to know beyond the text-book. They are interested in the teacher's reading, in his travels and in his experiences. This is possible if the teacher manages to give a lecture punctuated with interesting anecdotes, personal experiences and verbal descriptions.

*Advantages:*

1. It vitalises ideas which too often appear cold and impersonal when printed in the pages of books. The spoken word is frequently far more effective than the printed one. While delivering a lecture, the teacher can indicate by games, gestures and facial expressions the exact shade of meaning that he wishes to convey. By impersonating characters, by modulating voice and by using simple devices, he can impress his message. He, in fact, can impart life and colour and vividness to the lifeless and colourless printed material.
2. *Lecture gives the teacher an opportunity to come in* immediate contact with the pupils. He can gauge the pupil's with appreciation. In case of doubt, he can repeat the message or change the approach and thus manage to carry the pupils alongwith him.
3. *Lecture can be adapted to the abilities, interests, previous knowledge and needs of the pupils.*
4. *Lecture gives the pupils training in listening and taking rapid notes.*
5. *Lecture saves time:* It ensures adequate preparation by the teacher which is useful for the pupils. Greater enthusiasm and interest on the part of the teacher is bound to be felt by the pupils as it is contageous.
6. *Good lectures stimulate brighter pupils*. They are prompted to put in more work.

*Limitations:*

1. It makes the learner a passive agent in the learning process. Learning is participating in the learning process, it needs the opportunity to talk, to ask questions, so that best of learning takes place. In order to guard against this

danger, it is advisable that the teacher resort to an occasional and informal use of this method.

2. The lecture lessens the opportunity for the pupils to learn by doing as readymade material is presented to the pupils.
3. The lecture is an inefficient teaching tool in the development of attitude formation and process outcomes. There is no teaching where there is no learning.
4. The lecture does not guarantee that the pupils will understand its contents. Being almost exclusively teacher centred, it offered little opportunity during the lesson to evaluate the amount and degree of pupil understanding.
5. The average high school student may not have sufficient attention span to attend closely to a full forty minute lecture. Moreover, the pace of the lecturer may not be adjusted to the majority of the students.
6. The lecture can quickly develop a deadening monotony. It is the exceptional teacher who can stimulate and keep up the interest of the students continuously.
7. Most high school teachers are not good lecturers.

*Some guidelines for the use of lecture method:*

1. The teacher should choose the occasions for his lectures with great care. A new chapter unit, the presentation of additional material, the summarising of an extensive topic and the clasification of a complex problem, are some of the best occasions for the use of this method. Sometimes, the teacher can give a hint about some topic to be developed in a later lecture. Pupils, thus, can be led to anticipate a lecture with eagerness.
2. Lecture should be carefully planned, on the lines of a development lesson plan.
3. It should be built around one central problem or topic with ancillary sub-problems and topics. Perhaps the best pedagogical basis for good lecture formulation is to pose a problem, delineate the difficulties, present a solution, and finally explain why it is the best solution.
4. It is always best to prepare a synopsis of the lecture as it is useful both for teacher and the taught. It avoids pointless digression. It will save the pupils from the distraction of taking notes. In this way, the teacher takes the pupils alongwith him as the pupils know the plan of the teacher.
5. The teacher must be very careful about the delivery of the lecture. He must speak clearly and slowly so that the pupils

are able to keep pace with him. He should speak naturally and directly. He should talk to his students rather than lecture to a class. Suitable modulations of voice relieves the monotony of the lecture. Frequent but natural change of positions help the speaker to feel at ease and also ensure every member of the class an equal opportunity to hear.

6. Instead of continuous talking by the teacher, lecture should be interspersed with occasional developmental questions to the students.
7. Lecture should make extensive use of verbal imagery and other oral illustrations. The examples and illustrations should be geared to the cultural background and intellectual level of the class.
8. Lecture should be full of humour. It should be enlivened by analogies, comparisons, anecdotes, stories, and incidents that bear upon the topic.
9. *Lecturer should utilise concrete illustrative devices* such as chalkboards, models, slides, motion pictures and other audio-visual materials, whenever possible.
10. Lecture should often be followed by a written test to measure the success of the lecture. The success of any teaching device can be known through the learning process. If the pupils have learnt well, the lecture is successful and if not, the teacher can revise his methods.

As a means of communicating information, the informal lecture is a reasonably efficient method.

**Discussion method**

This is another useful method of teaching. A problem, an issue, a situation in which there is a difference of opinion, is suitable for discussion method of teaching Ideas are initiated; there is exchange of opinion accompanied by a search for its factual basis; speech is free and responsible. New values are created. The participants—the teacher and the students, are inter-related in a process of competitive co-operation. Discussion, in fact, is an ordered process of collective decision-making. It seeks agreement, but if it is not reached, it has the value of clarifying and sharpening the nature of agreement.

Discussion, as a method of teaching, may be used for the following purposes:

(i) for laying plans for new work;
(ii) for making decisions concerning future action;
(iii) for sharing information;
(iv) for obtaining and gaining respect for various points of view;

(v) for clarifying ideas;
(vi) for inspiring interest; and
(vii) for evaluating progress.

There are two types of discussions used in schools—the informal and the formal. An informal discussion is one which involves the free verbal interchange of the participants without being governed by a predetermined set of rules. An all class discussion is an informal discussion. A formal discussion is one which proceeds in a predetermined manner, according to prescribed procedures.

*Informal discussion*

Here, the teacher is the leader. In order to make the discussion useful, ensure that:

(i) the topic under discussion remains in the forefront;
(ii) optimum pupil participation is secured;
(iii) discussion proceeds at the appropriate pace;
(iv) the pupils derive maximum benefit during every phase of discussion; and
(v) the pupils get help in evaluating what has been learned.

The teacher can only guide the informal discussion if he is the master of the subject and is well versed in pedagogical skills.

*Formal discussion*

Formal discussion may assume some such form as a debate, a symposium, a panel or a round table discussion etc.

*Debate:* A debate is a programme in which two or more students holding contradictory opinions on a particular problem present arguments. They are given opportunity to rebutt the opposite side. Later, the rest of the class is encouraged to ask questions from the debators or engage in a brief discussion with them. A debate has a moderator. In order to get significant results, the teacher should work both with the debators as well as with the class.

*Symposium:* Here, the participants present to the audience their views about various aspects of a selected problem or topic through speeches or paper reading. In the words of Struck, "we think of a symposium as a group of comment, either spoken or written, which portrays contrasting or at least different points of view." The chief purpose of the symposium is to clarify thought upon controversial questions. The general audience listens to the discussions and each person forms his own conclusions concerning the validity or value of the points of view presented. The ideal number of pupil participants in a symposium is four or five.

*Panel:* This form of discussion technique is useful when the original group may be very large. It places the discussion leadership in the hands of a small group of individuals—usually from four to eight, who constitute the "panel". The panel has a president and members. They are preferably seated in front. There may be a slightly raised platform, upon which tables and chairs may be placed in semi-circular arrangement to face the audience and to face one another to some extent.

In a panel discussion, we can follow either the rotation system where each member expresses his opinion in turn or the members may speak briefly as the thought comes to them one after the other. The panel discussion method should provide a natural setting in which people will have the opportunity to ask questions, to evalute replies and to contribute constructively.

The panel discussion, if properly organised, can prove advantageous:

(i) It stimulates mental activity, provides clarity in thinking, and helps in fluency of expression. It gives training in presentation of views.

(ii) The quick exchange of facts, opinions and views greatly develop intellectual dexterity and power to argue.

Much of the success of this device depends on the chairman. He should be able to motivate the panelists, energise a sagging discussion, bring each panelist into active participation, keep the discussion focussed on the problems, make both periodic and final summaries and stimulate questions from the class.

*Advantages;*

1. Discussion helps in clarifying and sharpening the issues. New ground is discovered both for agreement and disagreement. Old ideas and values may be replaced by new ones.
2. Discussion helps children crystalise their thinking and identify concepts needed for their study.
3. Students come to know and understand that difference in prespective need not result in disaster and that people believe in the same thing for different and acceptable reasons.
4. Discussion helps the student in discovering what he does not know, what he has overlooked and wherein he is mistaken both in facts and their interpreting. Equally important, he may find out what he knows with surety.
5. Discussion gives knowledge a round trip. It is not the one way affair of the lecture. It engenders more reflection that the 'ping-pong' of the question and answer recitation. Of all

the methods of teaching it is furthest from note-learning. It employs reasonable persuasion in place of cajolery, threat, coercion or propaganda.

6. Discussion engenders toleration of various viewpoints.
7. Discussion can help the teacher in discovering students who have a potential for becoming leaders.
8. Discussion activates thinking along the lines of self-evaluation. It is helpful in establishing an attitude of looking forward to progress and growth.
9. The method is useful both for the juniors and seniors. On the lower level, children learn through conversation and discussion; listen attentively, speak distinctly; act cooperatively; sit and stand correctly: respect the ideas of others; share interests; ask pertinent questions; utilise simple information and comprehend the problem before the group. At the upper level, children plan and discuss problems with the entire group and in smaller units. A group learns together and presents important imformation; makes suggestions; shares responsibility; shows interest; respect the opinions and ideas of others; comprehends the topic; evaluates the findings and summarises results.

It is obvious, discussion as a method of teaching can yield good results.

**Demonstration method**

This method involves the presentation of a pre-arranged series of events to a group for their observation. This is accompanied by explanatory remarks. This method is most commonly used in science and fine arts. It can be used in giving information, training and knowledge.

The demonstrations should be selected both in terms of the needs of the observers as well as the ideas, materials, procedures or techniques which can be observed profitably. The physical environment should be carefully arranged to assure a smooth demonstration, clear vision and hearing by observers.

Here are some suggestions for a successful demonstration:

1. Plan the demonstration in great detail and rehearse it. It will be better if the teacher prepares an outline with the cooperation of pupils.
2. Make sure that all the materials and illustrations are nearby when the demonstration begins.
3. Break down the demonstration into a simple step-by step pattern so that it can be easily understood by the class.

4. Proceed with the demonstration slowly so that all the pupils may easily grasp the details.
5. Whenever possible, involve, students in the demonstration.
6. Ascertain after each step whether the students have grasped the meaning, contents and explanation. If they have not, the relevant parts should be repeated.
7. Verbal explanations should heighten the interest and increase learning.
8. Observation guides may be used which should require the students not only to look but also to analyse, record, tabulate or otherwise be actively involved in observing.
9. Plan follow-up activities which permit sharing of impressions, analysing records, drawing generalisations and making applications. Make an assignment based on the demonstration. This will help evaluate pupil learnings.

*Advantages:*

1. The demonstration can open a student's eye to a new world of understanding. It will help him to acquire knowledge in the first hand form.
2. The demonstration shortens the time for learning and lengthens the memory of facts and principles.
3. The demonstration is quite effective in making clear to participants and observers the relationship between skills and their purpose.
4. The demonstration aids in bringing about a relationship between the theory and practice.
5. The demonstration fosters good thinking in groups and individuals.

Thus, demonstration, if it is well planned, conducted and followed, can be a useful approach in teaching.

**The problem method**

In this method, attempt is made to train the minds of the pupils by confronting them with real problems and giving them the opportunity and freedom to solve them. The major purpose of the problem, as it is used in school, is to afford training to the pupils in thinking in solving the problems mentally.

Problem solving approach is meaningful, developmental, sequential and based on the discovery of generalisations. It involves the thought process that results from doubt, preplexity or a problem. The approech leads to the formulation of generalisations that are useful in future situation involving the solution of problems. It is an important contribution to learning.

*Steps of the method*

1 Discovering, considering, discussing, selecting and stating the specific problem or question.
2. Collecting, organising, comparing and judging significant information in the light of the defined problem.
3. Exploring the problem and framing some possible solutions.
4. Drawing preliminary conclusions for further exploration and study.
5. Evaluating findings and establishing a conclusion.
6. Considering the summarization with the possibility of further study.

*Essential qualities in a problem*

1. It should be in line with the needs and interests of a particular group of pupils.
2. The problem should be valuable and timely.
3. It should impart functional and rich learning.
4. The pupils should feel that the problem is their own. The teacher can motivate the pupils in a manner to make the pupils think out the problem under study themselves.
5. Pupils should identify the problem and its means of execution to avoid wastage of time.
6. Conclusions and generalisations, once found, should be stated very clearly so that these can be further used in the solution of new problems.

*Major approaches in problem-solving*

In problem-solving four different approaches may be followed: inductive, deductive, analytic and synthetic.

*Inductive approach*

Here the child is enabled to arrive at the general conclusion, establish laws or formulate generalisations through the observation of particular facts, and concrete examples. A universal truth is proved by showing that, if it is true for a particular case and is further true for a reasonably adequate number of cases, it is true for all such cases. The formula or generalisation is thus arrived at through a convincing process of reasoning and solving of problems. After a number of concrete cases are understood, the student can successfully attempt the generalisation. For instance, the students are conducting a number of experiments to arrive at a conclusion that air has weight. In a geometry lesson, by measuring the angles of a triangle, come to the conclusion that their sum is equal to two right angles. In a grammar lesson, the teacher while teaching 'noun' may give examples and then help the pupils to frame a definition. Thus the approach is mainly *developmental.*

*Merits*

1. It is easy to understand a grammatical or mathematical principle established through a number of simple examples. The doubts, about, how and why of a formula, are clarified in the very beginning.
2. It is a logical method.
3. It gives the opportunity of active participation to the students in the discovery of a formula.
4. It is based on actual observation, thinking and experimentation.
5. It reduces dependence on memorisation and homework.
6. When a new rule is to be taught, inductive approach is the best.
7. It gives freedom from doubt and helps in understanding.

*Drawbacks*

1. It is limited in range. It contains the process of discovering the formula with the help of a sufficient number of cases, but 'what next' is not provided in it. The discovery of a formula does not complete the study of the topic. A lot of supplementary work and practice is needed to fix the topic in the mind of the learner.
2. Inductive reasoning is not absolutely conclusive. Three or four cases are picked up to generalise an observation. Therefore, the process establishes a certain degree of probability which can, of course, be increased and made more valid by increasing the number of cases.
3. It is likely to be laborious and time-consuming.
4. At the advanced stage, it is not so useful as some of the unnecessary details and explanations may become dull and boring.

*Deductive approach*

It is the opposite of the inductive approach. Here the learner proceeds from general to particular, abstract to concrete and formula to examples. The preconstructed formula, or definition is explained to the students and they are asked to solve the problem with the help of that formula. The formula or definition is accepted by the learner as a well-established truth.

The teacher announces the relevant formula or definition.

Students are told 'air has weight', thus they are asked to verify it by means of experiments. They are told that area of a rectangle = L × B. Then a few sums are solved before the students. The students apply these formulae to solve the problems and they memorise it for future use. Thus, as the children accept the general statement or the rules and the formulae without challenging, regardless of whether they are correct or incorrect or in harmony with outer reality, the approach is *authoritative and not developmental.*

*Merits*

1. The method is short and time-saving. The books and teachers, thus, have some preference for it.
2. It glorifies memory, as the students have to memorise a considerable number of formulae and definitions.
3. During practice and revision stage, deductive method is adequate and advantageous.
4. It combines with the inductive method to remove the incompleteness and inadequacy of the latter.
5. It enhances speed and efficiency in solving problems.

*Drawbacks*

1. It is very difficult for a beginner to understand an abstract formula if it is not preceded by a number of concrete instances.
2. Pure deductive work requires a formula for every type of problem and an extensive use of this method will demand the blind memorisation of a large number of formulae. It will thus cause an unnecessary and heavy burden on the brain.
3. Here memory is more important than understanding and intelligence.
4. If the pupil forgets the memorised formula which is very likely in cramming, he cannot recollect and reconstruct the formula easily.
5. The students cannot become active learners.
6. It is not suitable for the development of thinking, reasoning and discovery.

*Conclusion*

The two approaches, inductive and deductive, aim at establishing the validity of the thought process. Deduction can only give us formal validity because the rule is taken for granted. This may be misleading if the general statement is wrong. It is only induction which tests the material validity i.e. whether the application of deduction is actually real or not. Thus induction must supplement deduction to complete the thought process. Induction is to be the forerunner or predecessor of deductive. The deductive will give a good follow-up, if the understanding is earlier obtained through induction. The loss of time, due to the slow speed of induction, can be covered up through quick and time-saving process of deduction. There may be any number of arguments against deduction but it cannot be driven out of teaching. It is to serve as the complement of induction. Induction leaves the learner at a point where he cannot stop. The after work has to be completed by deduction. The two methods complement each other. Deduction is a process particularly suitable for a final statement and induction is most suited for the exploration of new fields. Probability in induction is raised to certainty in deduction. The modern teaching always starts with induction, leads to deduction, where the knowledge learnt is verified and then ends in induction, where the knowledge is applied to further examples. It should be Induction→Deduction-Induction. There is no question of 'either or'. Both are required.

*Analytic approach*

Analysis means the breaking up of the problem in hand so that it ultimately gets connected with something obvious or already known to us. It is the process of unfolding of the problem or conducting its operation to know its hidden aspects. We start with, what we have to find out. Then we think of further steps and possibilities which may connect the unknown with known and lead us to find out the desired result.

Thorndike says that all the highest performance of the mind is analysis.

*Merits*

1. It is logical method, leaves no doubts and convinces the learner.

2. It is a suitable method for understanding and discovery.

3. The steps, in its procedure, are developed in a general manner. Each step has its reason and justification.

4. The student is throughout faced with questions and thus increases his power at every step.

*Drawbacks*

1. It is a lengthy method.

2. It is difficult to acquire efficiency and speed with this method.

3. It may not be applicable to all the topics equally well.

*Synthetic approach*

It is the opposite of anylytic approach. Here, we proceed from known to unknown. Synthesis is to place together things that are apart. It begins from something already known and connects it with the unknown part of the statement. It begins with the data available or known and connects them with the unknown. It is the process of putting together known bits of information to reach the point where unknown information becomes obvious and true.

*Conclusion*

The pupil taught through synthesis is just like a man being led blind-fold to the desired goal. The analysis, being a lengthy method, needs the help of synthesis for the removal of this defect. It will not be useful if it is not followed by synthesis. Synthesis is the complement of analysis—they should always go together. Analysis leads to synthesis and synthesis makes the purpose of analysis clear and complete. For instance, in the teaching of mathematics, we analyse so as to synthesize; that is, we separate facts or things in order to find out how these can be knit together to form one whole. Analysis helps to understand and synthesis helps to retain the knowledge in memory. Analysis forms the beginning and synthesis forms the follow-up work. Both are independent. The teacher can help for the analytic form of the solution and synthetic work left to the pupils.

*Merits*

(1) *Problem-solving constitutes a realistic method for presenting the type of experience that the pupil will face throughout his career.* It gives him a fine chance to think, to judge and evaluate, to compare and select what is best. Whenever a specific question has to be answered, the facts have to be marshalled and directed toward solution. The individual is challenged to bring to bear all his information and experience in such a problem, which arouses his interest and awakens his curiosity.

(2) *The problem furnishes a natural objective—an objective of the pupil.* He can easily see its significance and works for its solution.

(3) *This method provides for logical way of thinking in the pupils.* The pupil can see the necessity and sequence of

following each step systematically.

(4) *The problem enables the pupil to utilize what he knows and focus this knowledge upon the unknown.* He learns to attack fresh problems with the knowledge at his command.

(5) *The problem can be adjusted to groups as well as individuals.* It thus promotes adaptation without sacrificing the social values that arise from co-operative understanding.

(6) *The method develops initiative and responsibility.* The pupil appreciates that the process is not a task which is assigned, but an inevitable requirement of the situation.

(7) *The traits of open-mindedness and tolerance develop as the children see many sides to a problem and listen to many points of view.* Their horizon of thinking is widened. They learn to think critically and independently and thus learn to struggle for solutions of selected problems.

(8) *Good and cordial relations between teacher and pupil are established and promoted.* The pupil feels free from arbitrarily imposed tasks of the teacher. He learns to appreciate the guidance of the teacher. Thus, a foundation is laid for good and happy relations between teacher and taught which is indispensable for the success of the teaching-learning process.

(9) *The problem can be adjusted according to the needs.* It can be a small unit or a long term assignment.

*Limitations*:

1. *This method will become monotonous if used too frequently.* So, it can be be used as one of the procedures and not as the sole method.
2. *The pupil can start over-estimating himself.* Problem-solving in the class-room means solution of simple problems—it is just an exercise to give training to the pupils. But there is a danger. The solution of simple problems may easily lead the pupil to think that he has acquired a technique that is applicable to complex social problems as well as to classroom exercises.
3. *There is the danger that the problems may be selected which may be trivial, untimely or problems that generate more feeling and emotion than thought.* This danger can be avoided if the teacher is very cautious in selecting the problems.
4. *The problem method may easily become a seminar method that is too advanced for pupils.* Very capable teachers are

required to avoid dissatisfaction and discouragement on the part of the pupils.

Problem-solving is not a mere "method of teaching"—it is more a method of organisation of subject-matter in such a way that it can be dealt with through the study of problems.

**The Assignment Method**

This method is generally advocated for teaching different subjects to pupils in the higher classes. The syllabus is split up into significant units or topics; each unit or topic, in its turn, is subdivided into learning assignments for pupils. The pupils are usually required to prepare the assignments in writing. It is felt, written assignments help in organisation of knowledge, assimilation of facts and better preparation for examinations.

*Types of Assignments:* There are four types of assignments:

(i) *Preparatory assignments:* These assignments are meant for circulation purposes. The pupils can be prepared for the work which is to follow on the next day. After this preliminary pilot work, the teacher can lead the class with ease and understanding.

(ii) *The study assignments:* Pupils carry on the study individually or in groups. The assignments can vary with the individuals 'each according to his need' and 'each according to his capacity.' The assignment can range from a page or paragraph assignment to a chapter, topic, problem, project, exercise, report, unit, contract or experiment. The teacher guides the pupils in their problems.

(iii) *The revisional assignments:* This type of assignment is given for (a) providing drill to the work done by the students, (b) checking their retention and reproduction of facts, incidents etc. of the topic, and (c) for checking the understanding of the topic. These assignments are worked out in advance keeping in view the specific objectives of the subject matter being tested.

(iv) *The remedial assignments:* These assignments are devised in the light of pupil's reactions to the three types of assignments mentioned above. The purpose of these assignments is to remove weak points and clear misunderstandings.

There is another classification of assignments—common assignment, small group assignment, and individual assignment.

*Common assignment* is one on which every member of the class works. Such an assignment is used in the case of basic learnings of all the students.

*Small group assignment* is differentiated assignment which is tailored to the needs, interests and abilities of each small group in the class. Thus, in a heterogeneous class, a basic assignment will be given to the slow learners and the same assignment, in an enriched form will be given to the superior students. Individual assignment is different and distinct for each pupil. It is designed in accordance with each pupil's achievement level, interests, abilities and needs. Thus, it solves educational problems created by individual differences in a large group of students.

*Criteria of a good assignment*

(i) It should be definite, clear and interesting.

(ii) It should be sufficiently challenging to stimulate pupil's interest in it.

(iii) It should be significantly related to the topic of which it forms a part. It should lead pupils to meaningful complete learning experiences.

(iv) It should appeal to the pupil's curiosity or his desire to achieve a well established interest.

(v) It should not be too big—i.e. not take more than a week to prepare it.

(vi) It should not take more than two class periods to discuss it in broad outlines.

(vii) It should be flexible enough to meet the different range of interests and abilities represented in the group.

*Procedure*

The syllabus of the subject for a particular class, may be divided into suitable units and then, a tentative plan for preparatory study assignments should be chalked out.

*Preparation for the assignment:* Efforts should be made for developing the pupil's interest in writing the assignment. Broad heads under which the assignment is to be written, should be outlined. The necessary information which would help the pupils in working out the assignment, should be given. The work can be completed in one period.

*Writing the assignment:* The pupils may write the assignment at home or in the class. If they write the assignment in the class under the supervision of the teacher, they should be allowed the facilities to consult books and ask questions whenever necessary. This work may take more than one class period.

*Selection of pairs of pupils for mutual correction*: The pupils may be given a variety of probable errors which may occur in the subject to help them in their correction work. Common errors may be omission of vital facts, wrong statement of facts, statement of irrelevant facts, failure to bring out causal relationships, errors in language and spelling etc. The pupils may be asked to point out all these.

*Correction by pupils*: The pupils may be asked to correct their assignments at home.

*Correction of sample assignment scripts by the teacher and preparation of common list of errors.*

*Discussion of the list in a 'correction class.'* The common errors committed by the pupils should be discussed in a correction class to check their recurrence.

*Advantages*:

1. The assignment method is a kind of activity method—the pupils learn through their own activities as self-study and writing.

2. The assignment gives the pupils guidance in an expert way, prevents failure, provides for the arousal of interest and ensures success.

3. Assignment places the greatest emphasis on individual pupil work—thus the pupils learn to be on their own.

4. Through written assignments, the pupils get a training in the organisation of facts which is very useful.

5. Assignment provides the best possible mind set which is a prerequisite for effective learning.

6. Assignment method enables the teacher to know the interests of his pupils in a particular subject area. He is also able to discover the specific abilities of the individual pupil which may be developed and used for their own good.

7. It lends itself easily to objectives-centred teaching and it makes learning an exciting experience for pupils.

8. The teacher can foresee the difficulties, which the students may have to face in the learning of a topic. He can guide the pupils by intelligently putting thought-provoking questions in his assignments. The question and guidance to read or to study a topic will prepare the pupils to face the difficulties boldly.

9. The method helps both teaching and learning processes. The experience gained through the assignment will help in remedial teaching and learning.

10. The method is suitable for the pupils of different ability levels—gifted, average and slow.

**Supervised Study**

It is another method of teaching for promoting optimum learning. The main principle is the self effort of the child, carried on independently in learning new things under the supervision and guidance of the teacher. The pupils are busy at work assigned to them, When they meet with a difficulty that they cannot overcome, they ask the teacher for direction and assistance. The teacher, when not called upon, walks quietly up and down the classroom or remains at his desk watching the pupils do their work, continually on the alert for any wrong procedure that the pupils may follow. He is always ready to direct and aid them. Maxwell and Kilzer define supervised study as the effective direction and oversight of the silent study and laboratory activities of pupils.

Supervised study is, in fact, teaching the students how to study and guiding their study efforts in a part of the class period set aside for that purpose. It is a process of teaching pupils how to study by studying with them and by giving individual help in a period set apart for study. The chief aim of the method is to help the students acquire good study techniques and be efficient learners.

### *Different plans of supervised study*

1. *The double period plan:* Under this plan, one half of the time is devoted to the class activity used for student reaction and the other half of the period is used for the preparation of the advanced lesson under the immediate guidance of the teacher. In this period, pupil studies and the teacher offers assistance when required. Two periods of 40 minutes duration are enough for this plan.

2. *The daily extra period plan:* Here one period, generally at the close of the school day, is set aside for supervised study particularly for those students who find their work difficult. Attempts are made, students difficulties are located, correct methods of study are suggested and guidance is offered for completing the assignment. All, except the bright students, are required to attend this period.

3. *The library study plan*: The students of all classes, by turns, come to the library to study and use reference materials. The teacher supervises the reading and provides help when needed.

4. *The flexible supervised study plan*: This plan is used when large units are taken up. In this case, supervised study extends over a period ranging from one day to a week or more. The assignment is a sort of an introductory phase of supervised teaching which shows the objectives and outlines the mode of attack upon the unit or work. The rest of the time is used for student study; the teacher gives guidance to achieve the results of their study.

### *Activities during the supervised period*

Supervised study can yield good results, if the teacher has worked out a good plan of action. Teacher can take up some of the following activities during the supervised study period:

(i) Teach pupils to memorise.
(ii) Guide pupils in finding material from books.
(iii) Guide pupils in the use of books, maps, diagrams etc.
(iv) Guide pupils in the preparation of notes.
(v) Teach pupils to read rapidly.
(vi) Teach pupils to prepare reports.
(vii) Supervise the gathering and organisation of data.
(viii) Assist the pupils in the formation of hypothesis, make conclusions, application and judgement.
(ix) Discover special pupil interests, special abilities and individual differences.
(x) See that pupils complete the assignment.

*Advantages*:

1. Certain skills essential to successful use and understanding of materials can be acquired only through practice under the teacher's supervision. The teacher observes the pupils at work, sees their failings and difficulties. Thus he can be of considerable help.

2. *Pupils benefit from individual attention by* the teacher who brings to the situation his knowledge of each pupil, accumulated from observation. The teacher can detect pupil habits of study, efficacy of study skills and degree of progress. On the spot guidance can be given, which saves time as the errors are noticed. This will enable the teacher to redirect his efforts.

3. *Democratic human relations are encouraged.* In supervised study, pupils learn to share materials, to await their turn, to understand their own difficulties. This develops a sympathetic attitude towards the difficulties of others.

4. *Teacher becomes aware of the individual differences and these become a guide for the teacher.* He can guide the individual who proceeds slowly into effective learning expereinces meaningful for him. He can also guide the individual who works more rapidly and requires greater challenge to use his ability.

5. *As the teacher is constantly supervising, materials can be used more efficiently.* Under the teacher's guidance of individual pupils, the pupils learn the specific types of information available in various reference materials.

6. *Knowledge of pupils is broadened.* When pupils study the same phase of the class problem, the individual pupil may discover interesting types of related knowledge which he may explore later. The experience of finding new facts helps him to appreciate greater truths.

7. *Better pupil-teacher relationship develops.* The teacher,

instead of being a hard task-master, is a helper and guide. He gets an opportunity for displaying sympathy and understanding. The teacher is able to understand the pupil and his difficulties and is in a position to spur him into greater effort.

8. *Supervised study experience can be influential in establishing habits of critical thinking*, as the entire purpose of the supervised study procedure points towards the realisation of good judgement, discrimination in evaluating ideas and an objective investigation of facts on the part of the pupils. The supervised study period encourages the pupils not only to compare facts but also to evaluate the sources of facts, withholding opinion until enough evidence is available to justify a conclusion. Thus, pupils learn to examine the material critically. This in itself is a valuable experience.

## Summary

1. Method forms the most important link in the teaching learning chain. It is necessary that teachers are fully conversant with the different methods of teaching to be able to make the teaching interesting vital and living.

2. A number of methods can be used—Telling Method, Lecture Method, Discussion Method, Demonstration Method, Problem Method, Assignment Method, Supervised Study etc.

## Questions and Problems

1. Discuss the need of right methods of teaching. Suggest different classroom methods of teaching.
2. Briefly describe the Telling and Lecture Methods of teaching. What are the advantages and limitations of these methods in (a) Primary School (b) Secondary School.
3. What do you know about the Discussion Method? Suggest different forms of discussion. What are the advantages of this method?
4. How will you prepare your class for discussion of a problem? How would you assess the results of such a group discussion?
5. What is the scope and opportunity for the problem-solving method in the new pattern of education? Explain the special features and advantages of the Problem Method of teaching.
6. List the values claimed for problem-solving as a learning procedure. To what extent do these values appear to depend upon the teacher? Justify your conclusions.

7. What is the Problem Method of teaching? How are the Inductive and Deductive procedures modified in this method?
8. Discuss the use of Demonstration. Method in teaching Give suggestions for a successful demonstration. What are the advantages of this method?
9. Discuss the Assignment Method. What type of assignments can be given? Suggest the procedure for teaching an assignment lesson. What are the advantages of this method?
10. What do you understand by supervised Study? Suggest different plans of supervised study. What activities can be taken up during the supervised study period? What are the advantages of this method?

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